

Service Hints

Plasma Television



VIERA

**<500/50 Series> TH-50/42PX500U
TH-50/42/37PX50U
TH-42PD50U**

Trouble Shooting for Power Supply - Ver 2.0 -

This service hint is published for technicians and engineers for repair.
And it gives you the information how to judge the defective board of PDP.

Please file and use this Service Hints together with the main service manual and other publications related to models.

WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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 - (TH-42PX500U)
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 - LED 8 times blink --- P 20

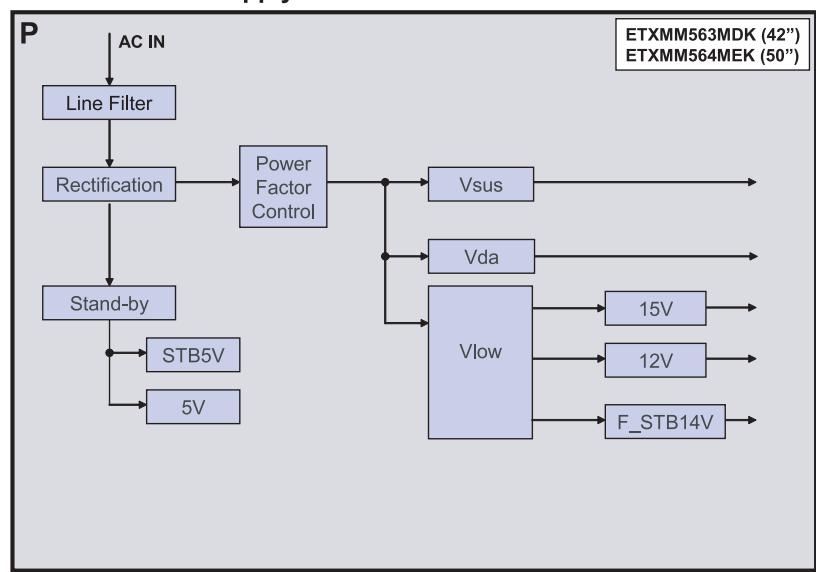
- LED 10 times blink (TH-42PD50U) --- P 21
 - (TH-37PX50U)
 - (TH-42PX50U)
 - (TH-50PX50U)
 - (TH-42PX500U) -- P 22
 - (TH-50PX500U)

- LED 11,12 times blink ----- P23

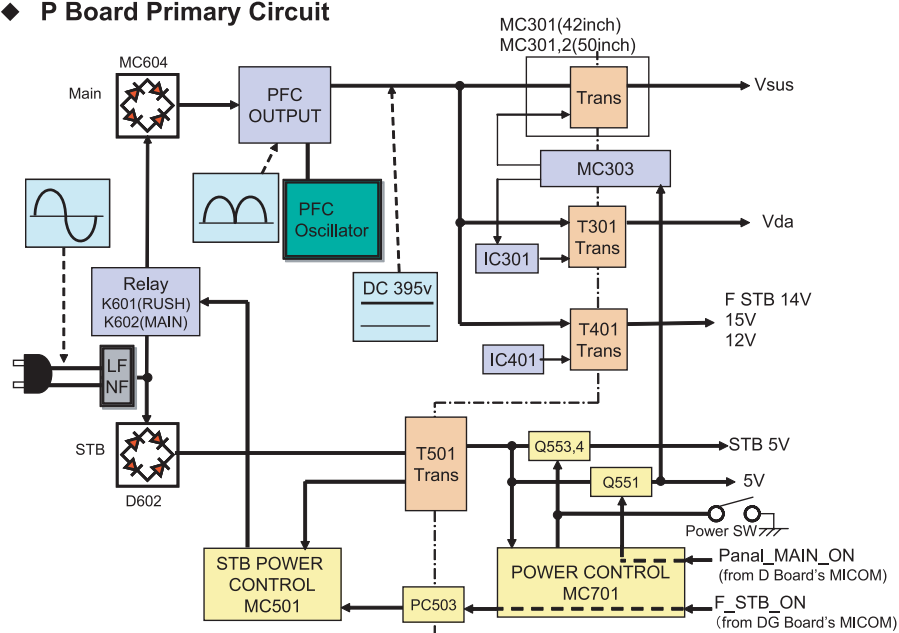
Circuit Operation Power Supply

<TH-42PX50U, 50PX50U, 42PX500U, 50PX500U>

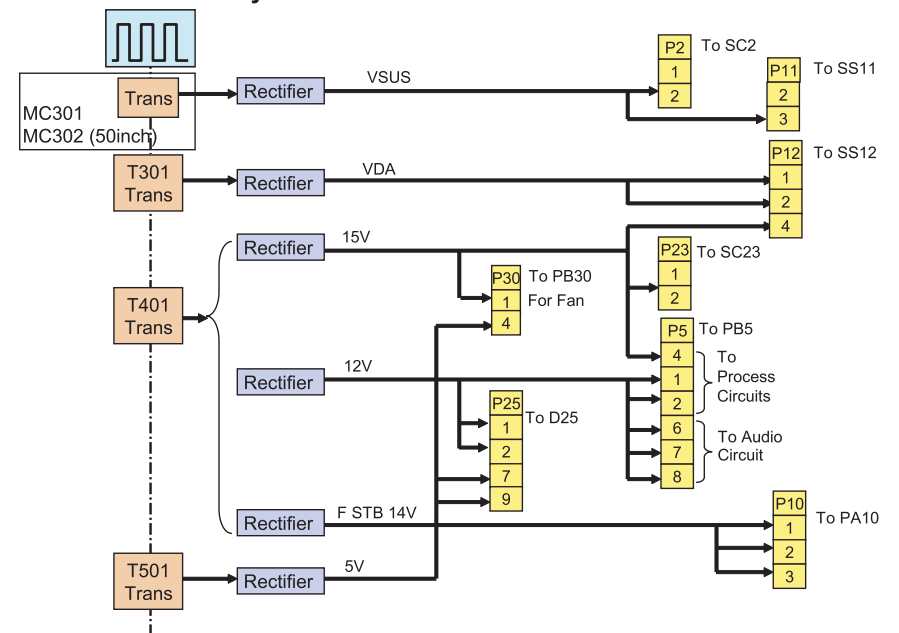
◆ P Board Power Supply Outline



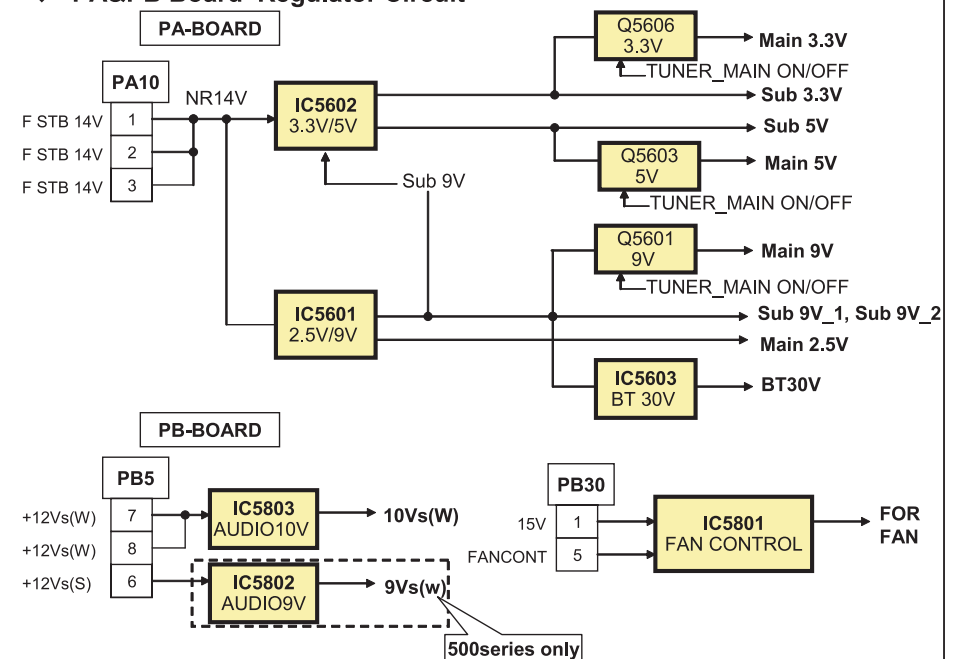
◆ P Board Primary Circuit



◆ P Board Secondary Circuit



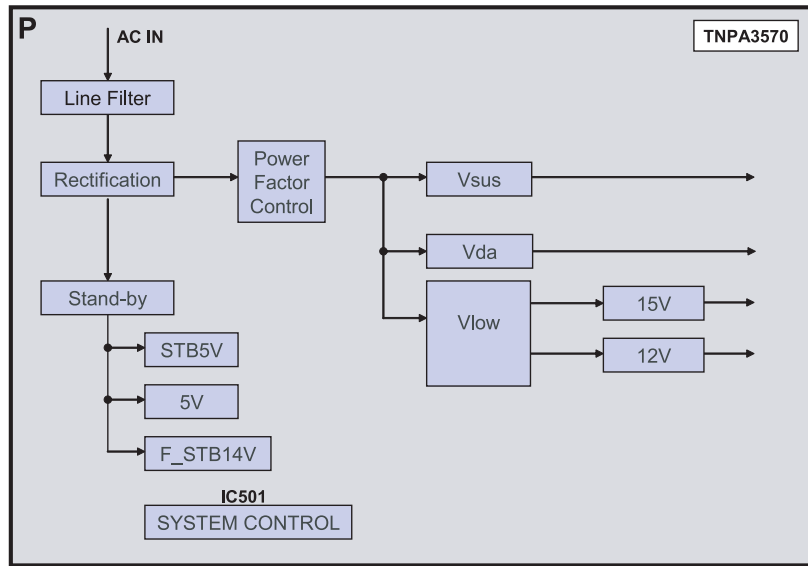
◆ PA&PB Board Regulator Circuit



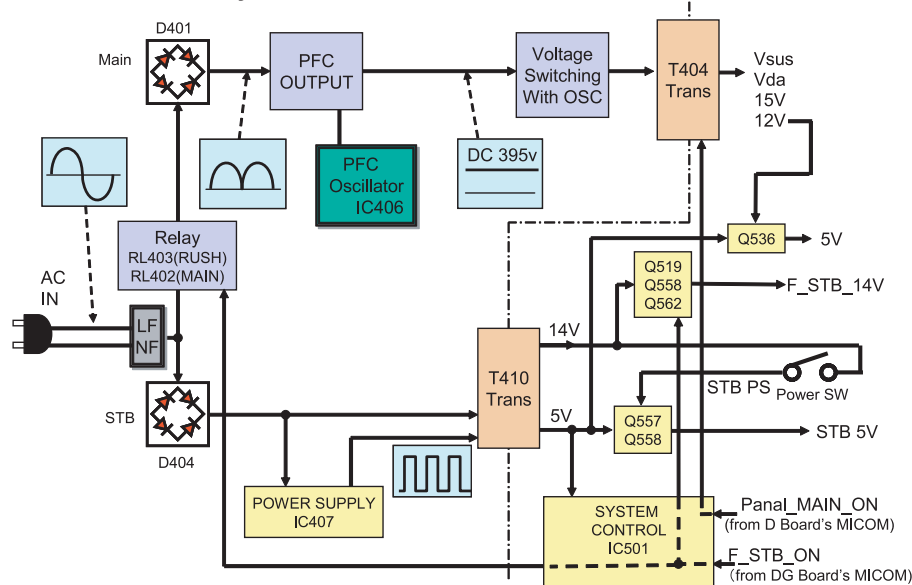
Circuit Operation Power Supply

<TH-42PD50U, 37PX50U>

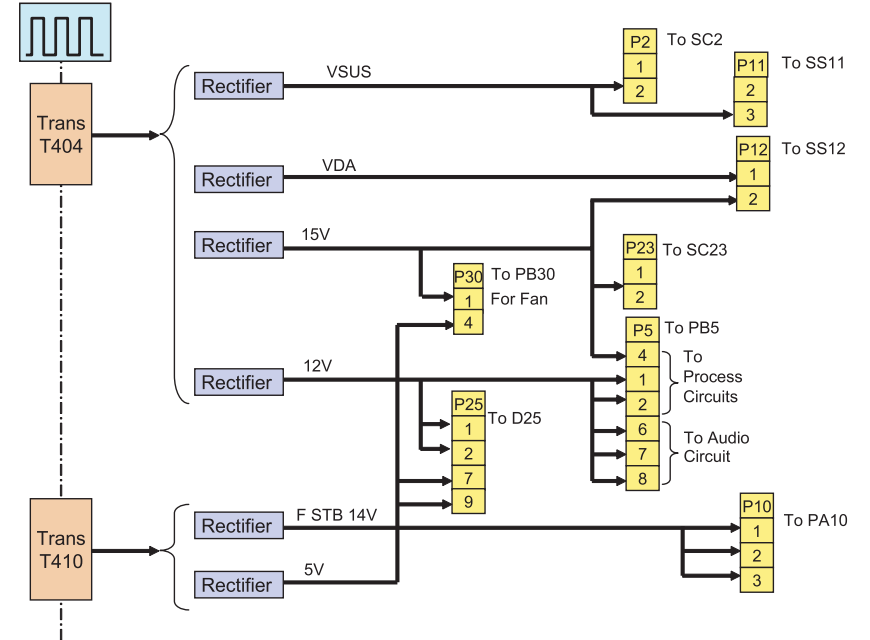
◆ P Board Power Supply Outline



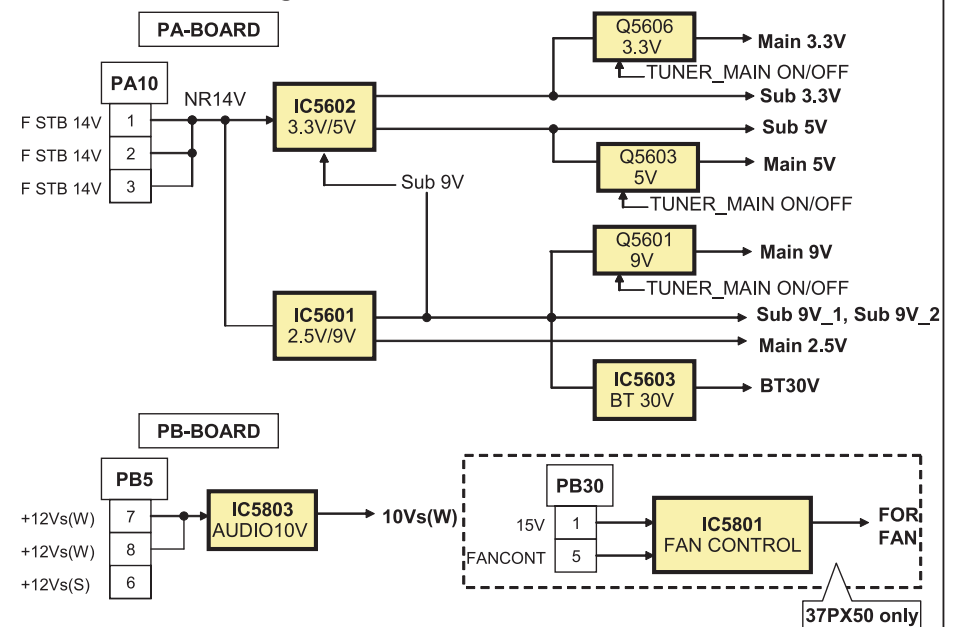
◆ P Board Primary Circuit



◆ P Board Secondary Circuit



◆ PA&PB Board Regulator Circuit

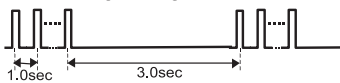


Circuit Operation Protection Circuit

◆ Power LED Blink Mode

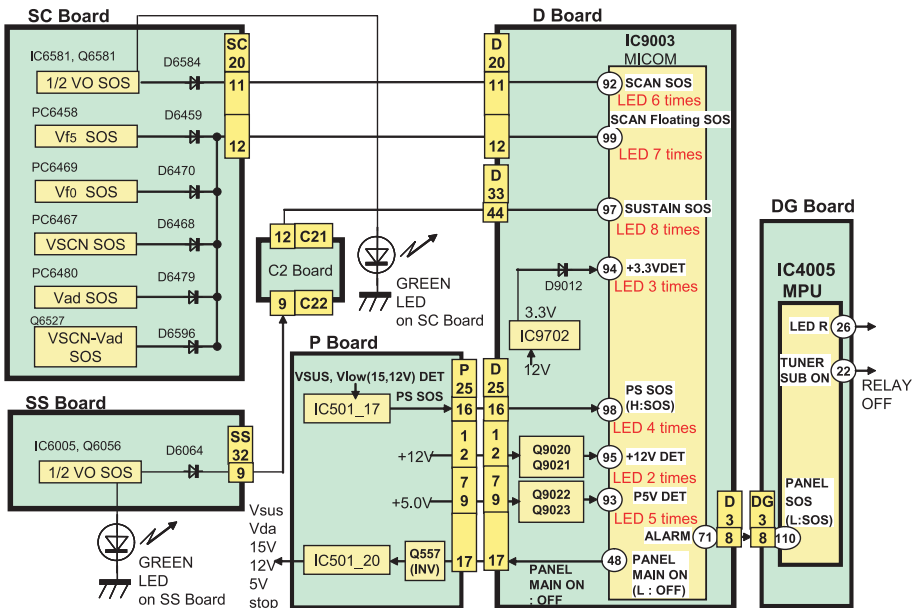
LED Blinking times		Trouble Mode	Defective Circuit Board (example)	
1st (*)	Improved		42PD50U / 37,42PX50U / 42PX500U	50PX50U / 50X500U
1	1	IIC communication NG	Unknown (D)	
	2	12V down SOS	P, D	
	3	3.3V down SOS	D	
4		Power SOS (V _{sus} , 5V down)	P, (SC, SS, D, SU, SD)	
5		P5V SOS	D, P, C, SC, SS, Panel	
6		SC Energy Recovery SOS(37" 42") + SC Floating Volt. SOS (50")	SC, SS, D, P	SC, SU, SD, SS, D, P
7		SC Floating Volt.(37" 42") DATA Driver SOS (50")	SC, SU, SD, D, P	SS, D, C, P
8		SS Energy recovery SOS	SS, SC, D, P	
9		Soft-Ver. Combination NG	D	
10		Tuner Power SOS	PA, P, (H, DG, Z, DT, DV)	PA, P, (H, DG, GS, Z, DT, DV)
11		Fan SOS	PB, FAN	
12		Sound SOS	PB, Z	

LED Blinking Timing

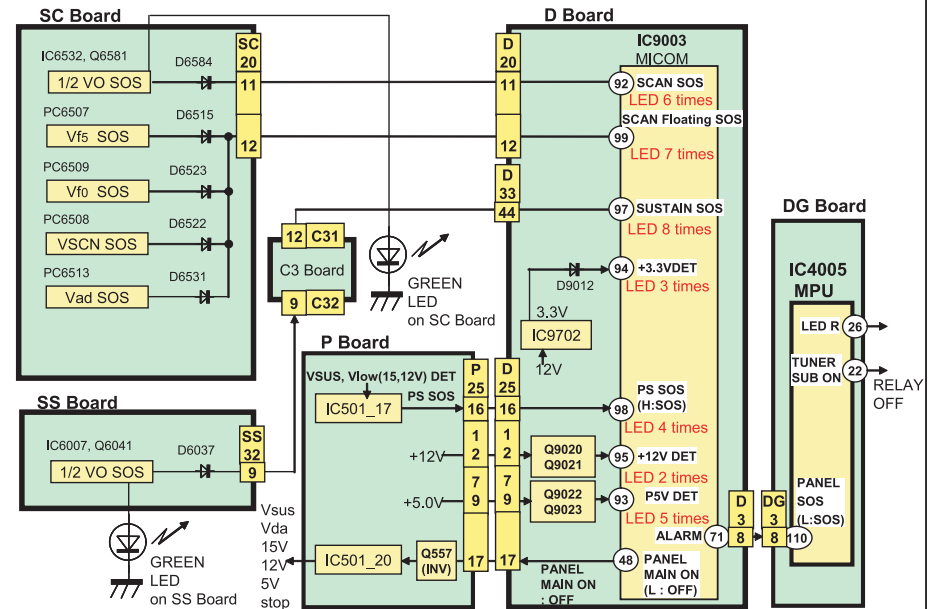


(*) Note
2 and 3 times LED blinking become to 1 time in 1st design.
So, when 1 time LED Blinking is found, execute the flow chart of 2 and 3 times described later.

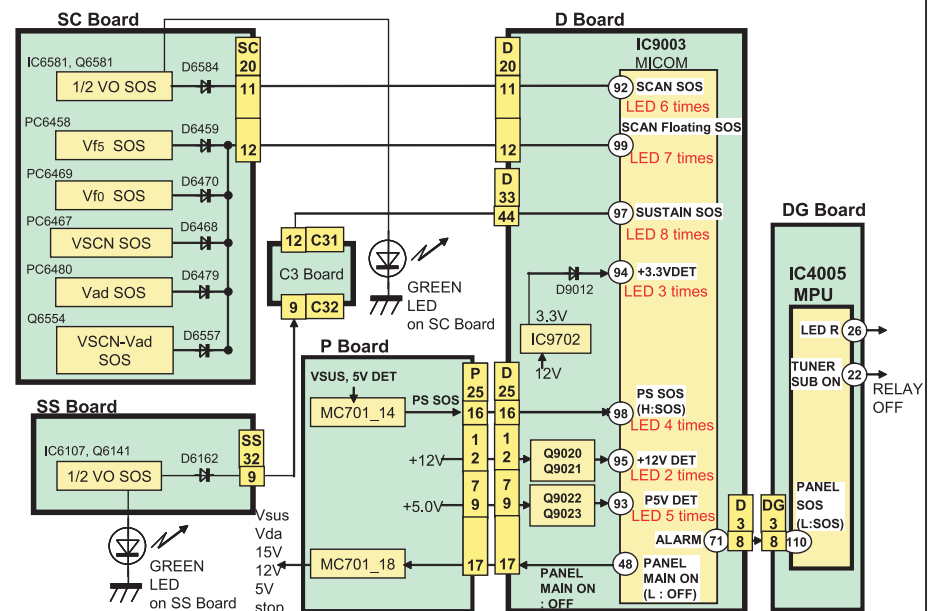
◆ Panel SOS LED 2~8 times blink <TH-42PD50U>



◆ Panel SOS LED 2~8 times blink <TH-37PX50U>

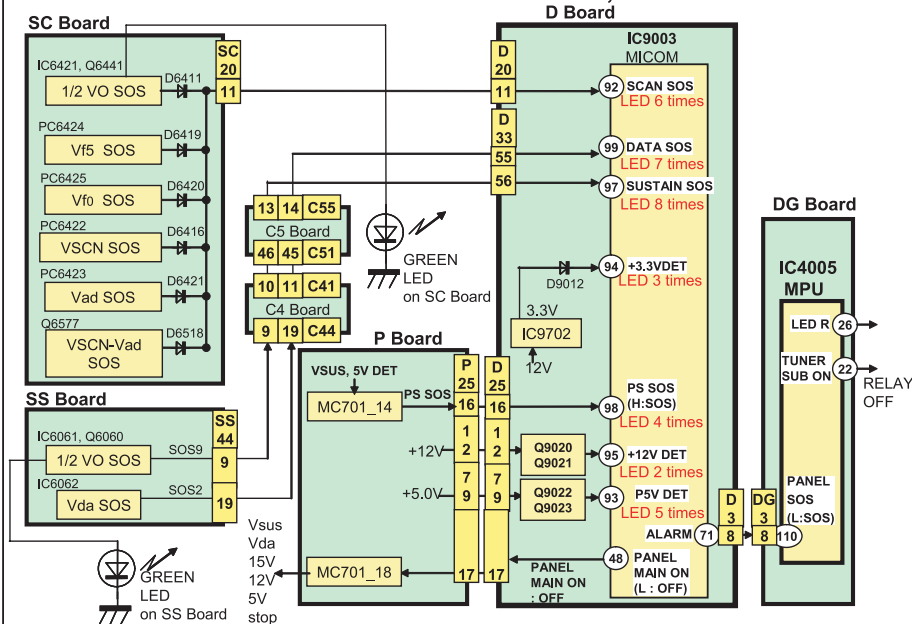


◆ Panel SOS LED 2~8 times blink <TH-42PX50U, 42PX500U>

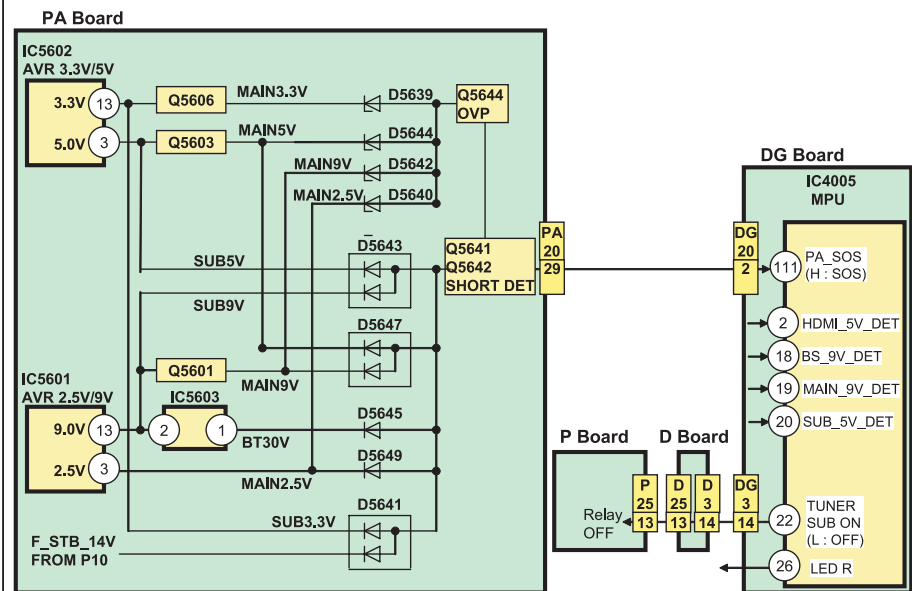


Circuit Operation Protection Circuit

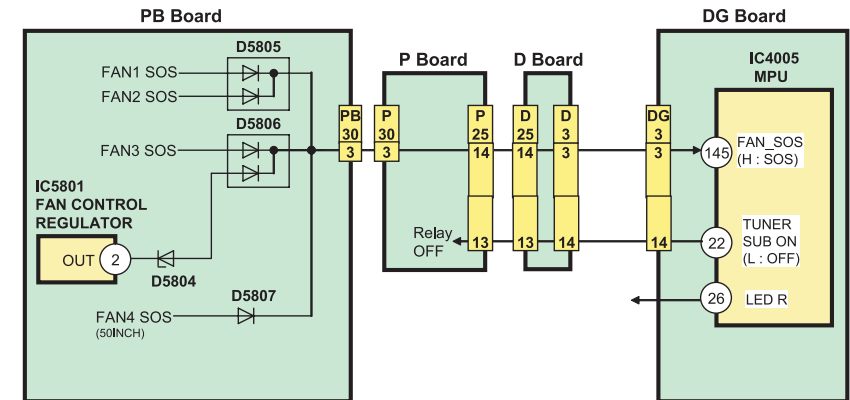
◆ Panel SOS LED 2~8 times blink <TH-50PX50U, 50PX500U>



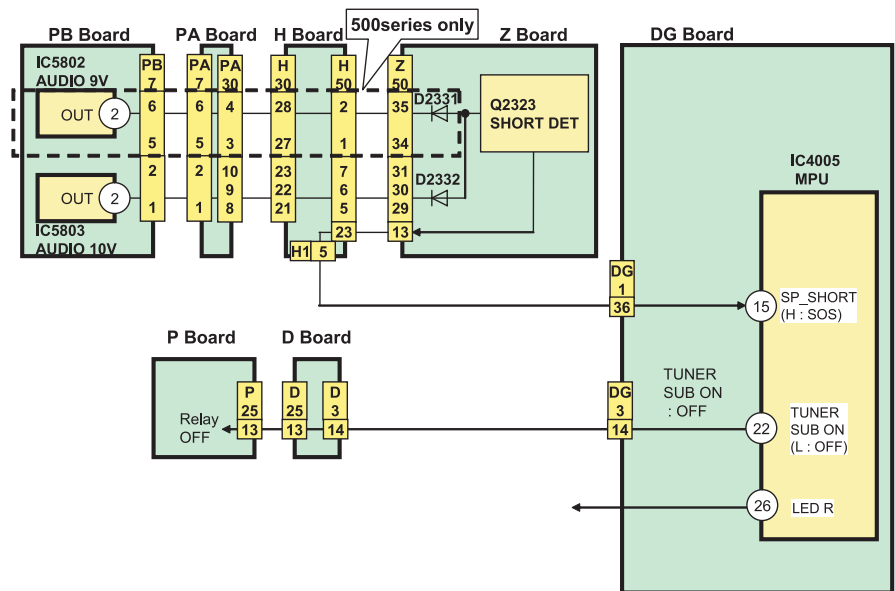
◆ Tuner SOS LED 10 times blink



◆ FAN SOS LED 11 times blink



◆ Sound SOS LED 12 times blink



Introduction of Power Trouble Shooting

1. These are following 2 states of Power LED in Power Trouble

- A. No Lit (Relay doesn't work)
- B. Blinking several times

2. Basic Idea of how to find the defective block

- A. Check if the voltage comes up

Normally, when Power ON, shut down occurs immediately.
So, check is necessary before shutdown.

- B. Check if power comes up, when disconnecting the board which seems to be defective.

If power comes up (*) when disconnecting a board,
the board is defective. (*) "Power comes up" means "no shutdown".

3. Adjustment after P.C.B. exchange

When exchange the following boards, voltage adjustment is necessary.
Please refer to Service Manual.

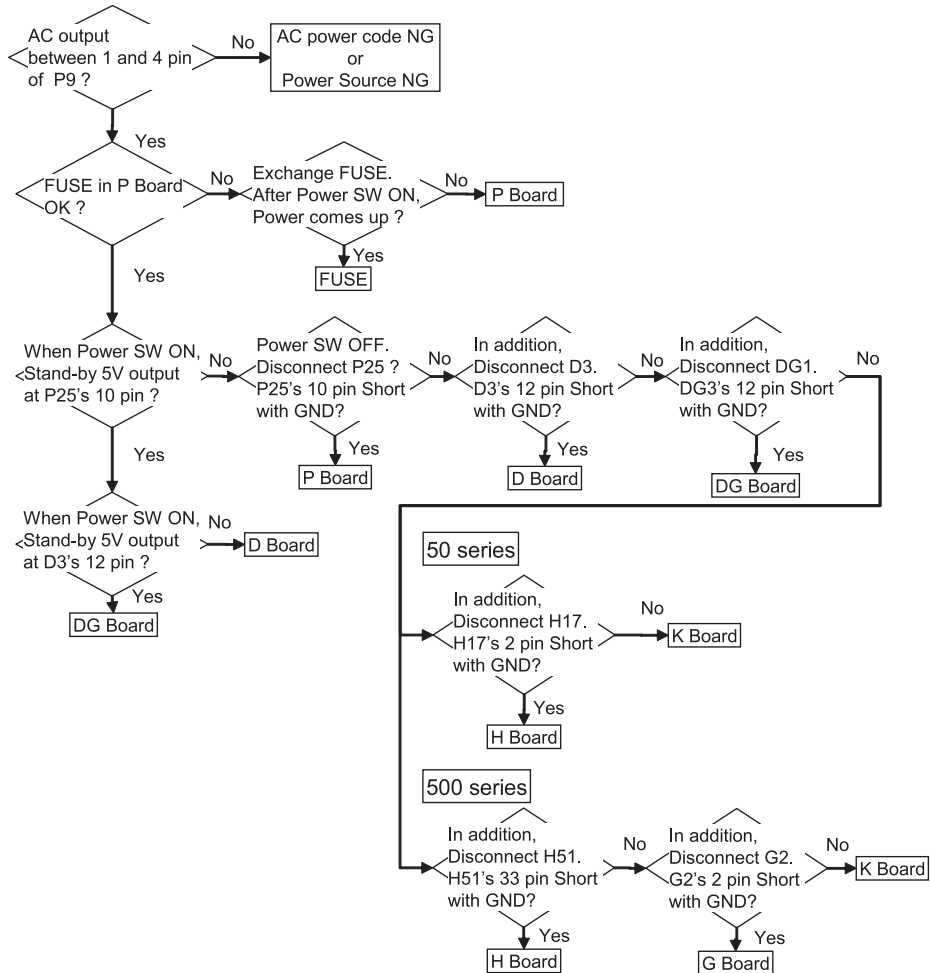
P.C.B	Voltage
P board	Vsus
SC board	Vad
SS board	Ve

Trouble Shooting Power LED No Lit Trouble

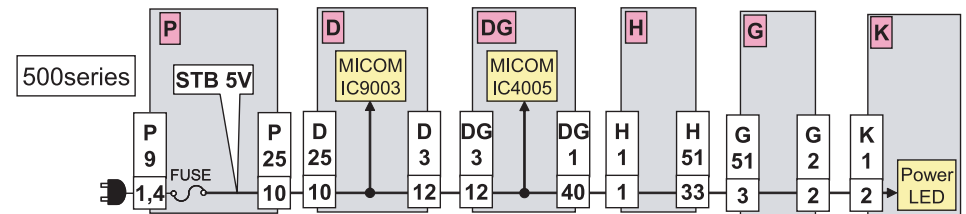
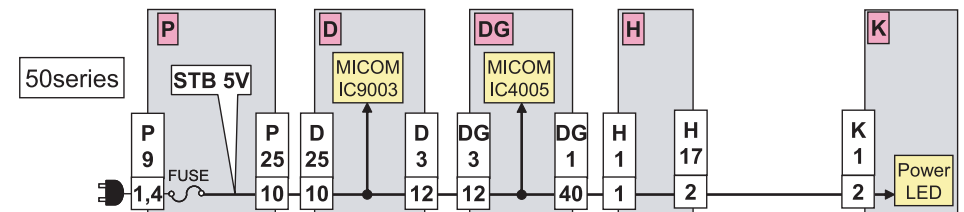
◆ Trouble status and Defective Block

Power LED Status (cause)	Defective Block
No Lit (STB 5V NG)	AC Power Code or P Board (or other Boards)

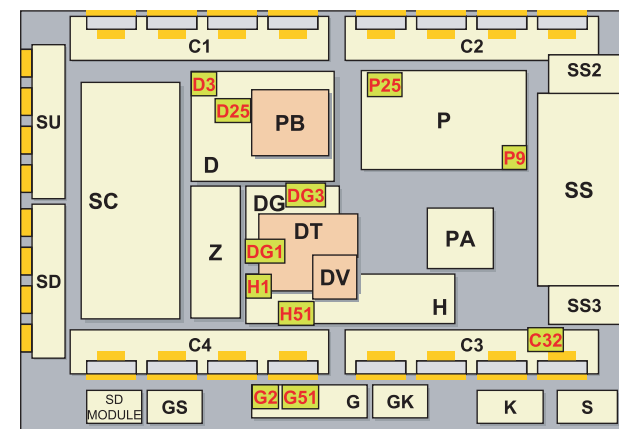
◆ How to find the defective board



◆ STB 5V Power Supply



◆ Check Point Location e.g 42PX500U



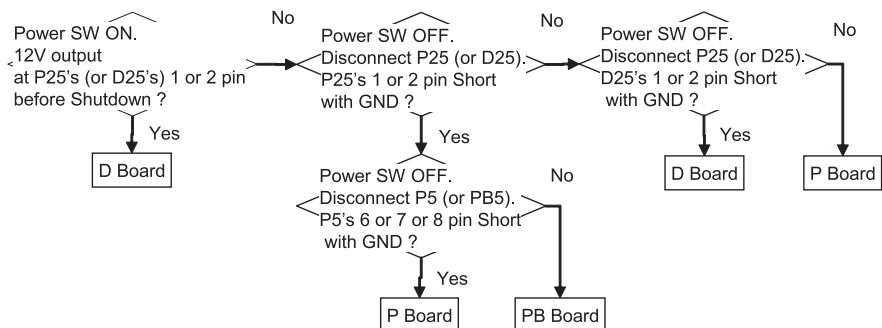
Trouble Shooting Power LED Blink Trouble

LED 2 times blink

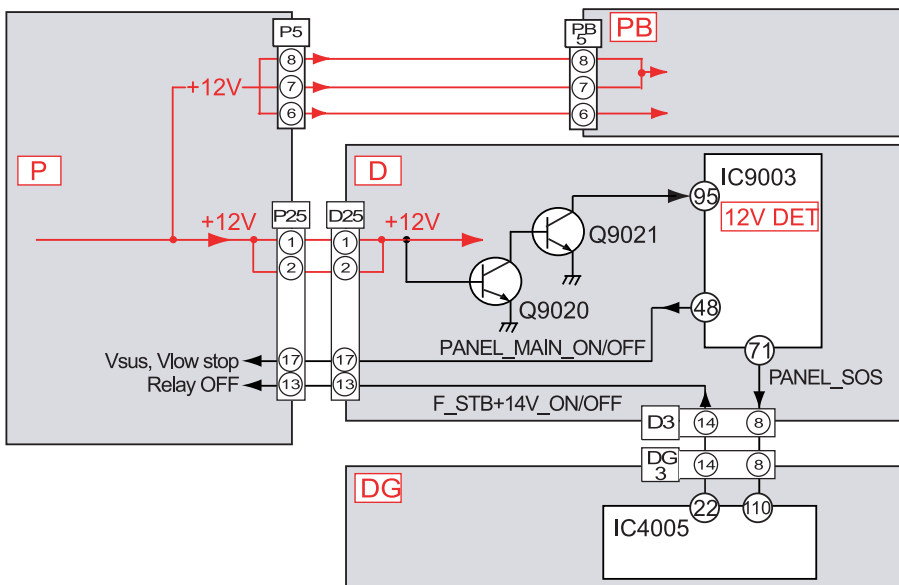
◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board (Possibility)
12V down SOS	P, D, PB Board (P > D, PB)

◆ How to find the defective board



◆ Power Supply and Protection Circuit



LED 3 times blink

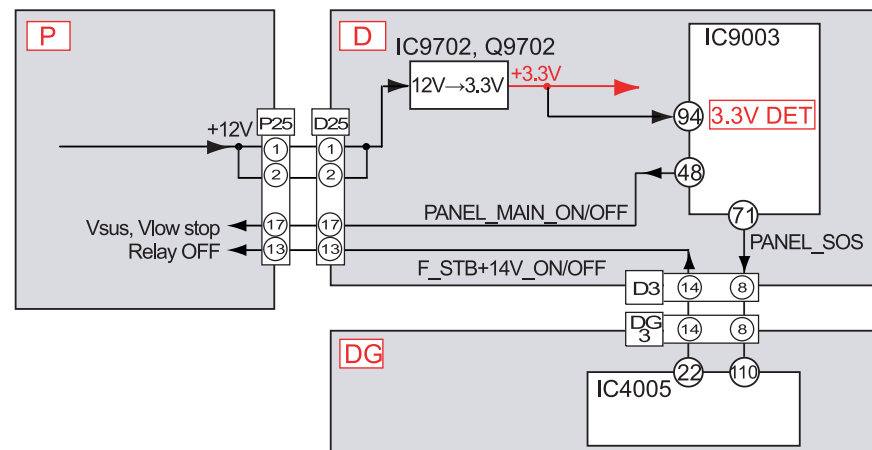
◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board
3.3V down SOS	D Board

◆ How to find the defective board

The defective board is D board ONLY.

◆ Power Supply and Protection Circuit



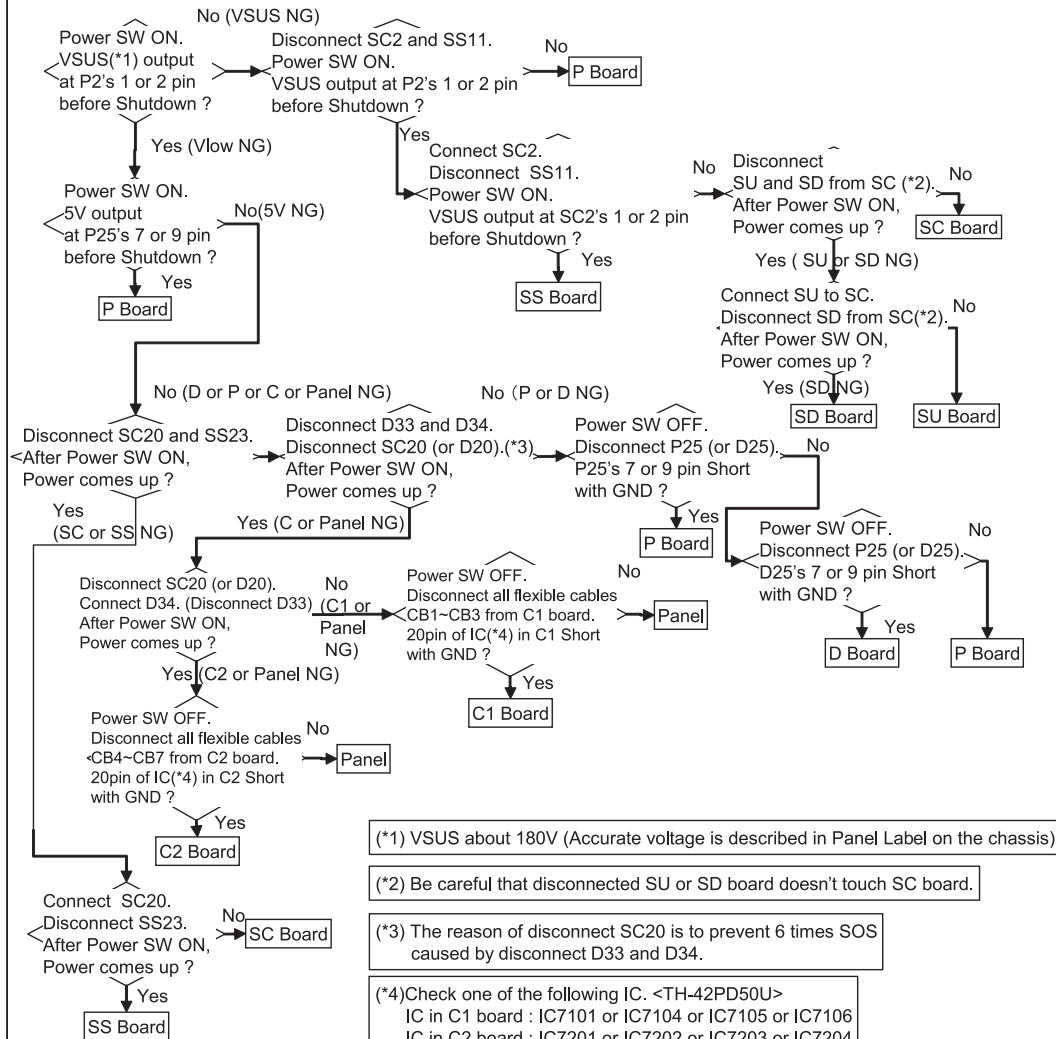
Trouble Shooting Power LED Blink Trouble

LED 4 times blink < 42" SD (TH-42PD50U) >

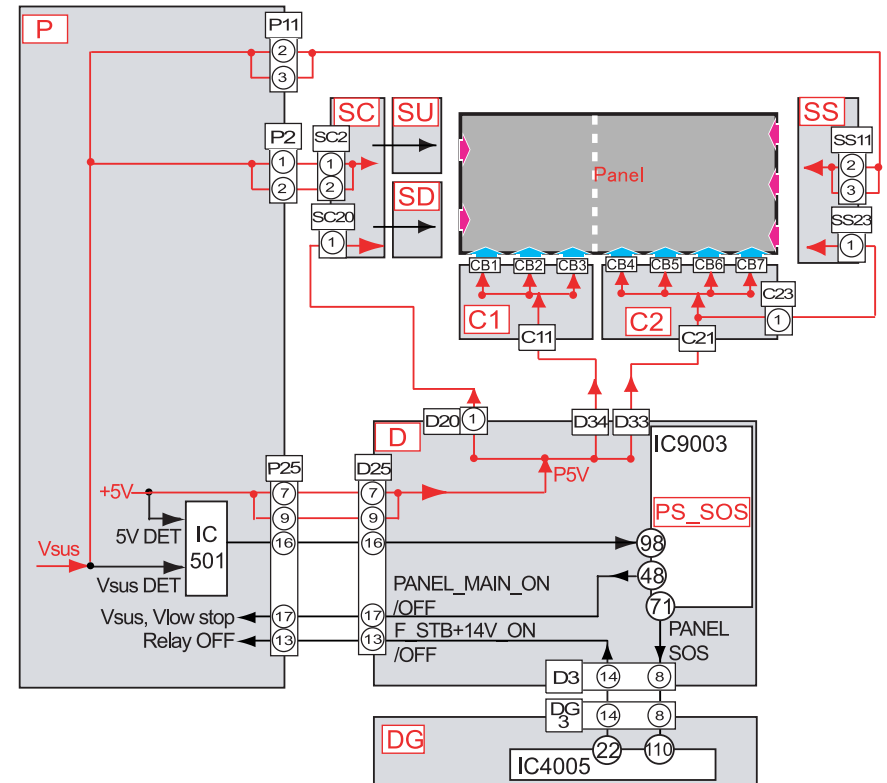
◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board (Possibility)
Power SOS = Vsus, 5V down	P, SC, SS, D, SC, SU Board (P > SC, SS, D, SU, SD)

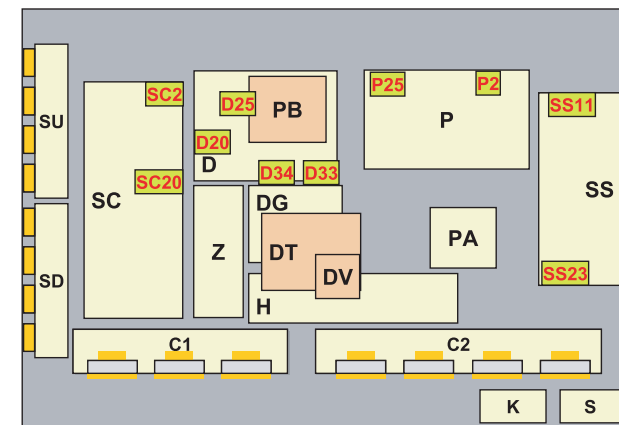
◆ How to find the defective board



◆ Power Supply and Protection Circuit



◆ Check Point Location



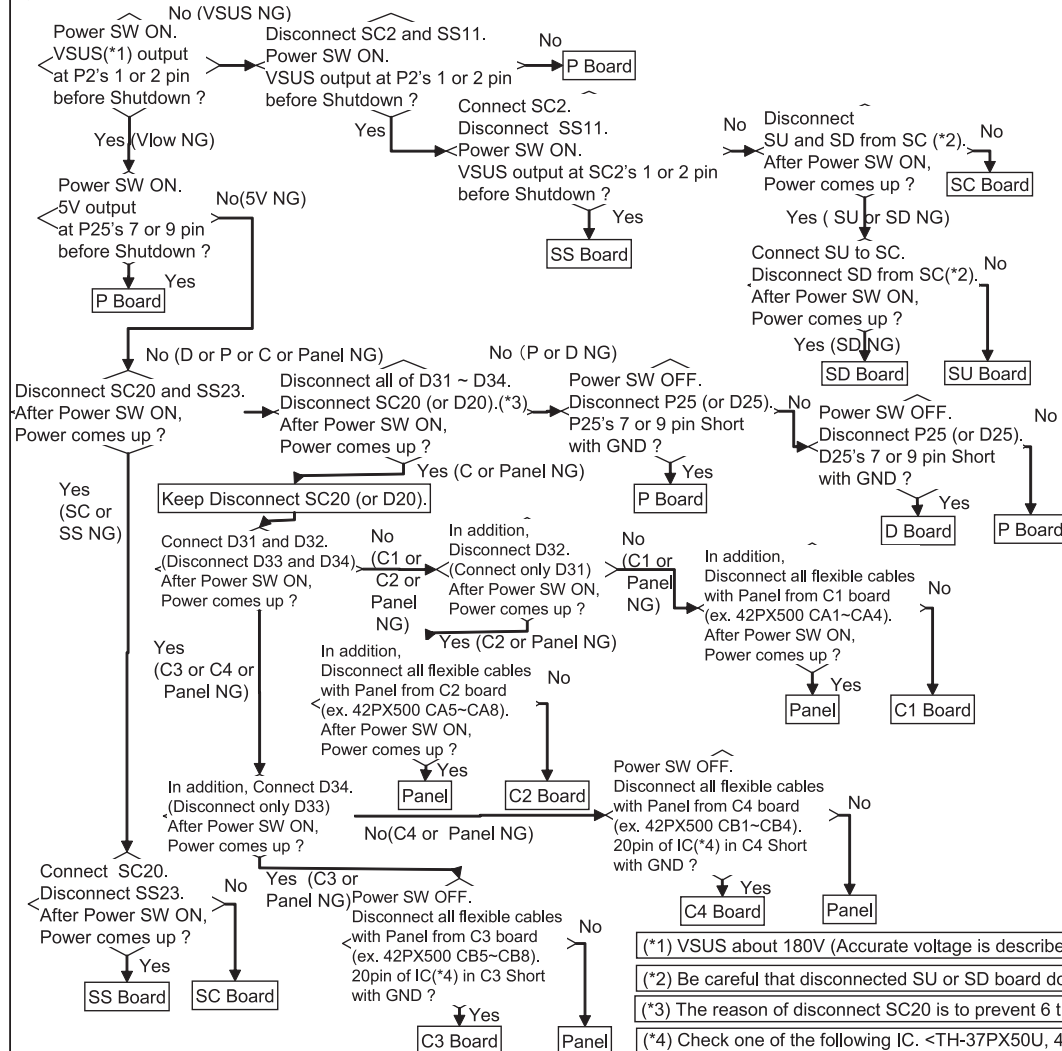
Trouble Shooting Power LED Blink Trouble

LED 4 times blink < 37", 42" HD (37PX50U, 42PX50U, 42PX500U) >

◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board (Possibility)
Power SOS = Vsus, 5V down	P, SC, SS, D, SC, SU Board (P > SC, SS, D, SU, SD)

◆ How to find the defective board



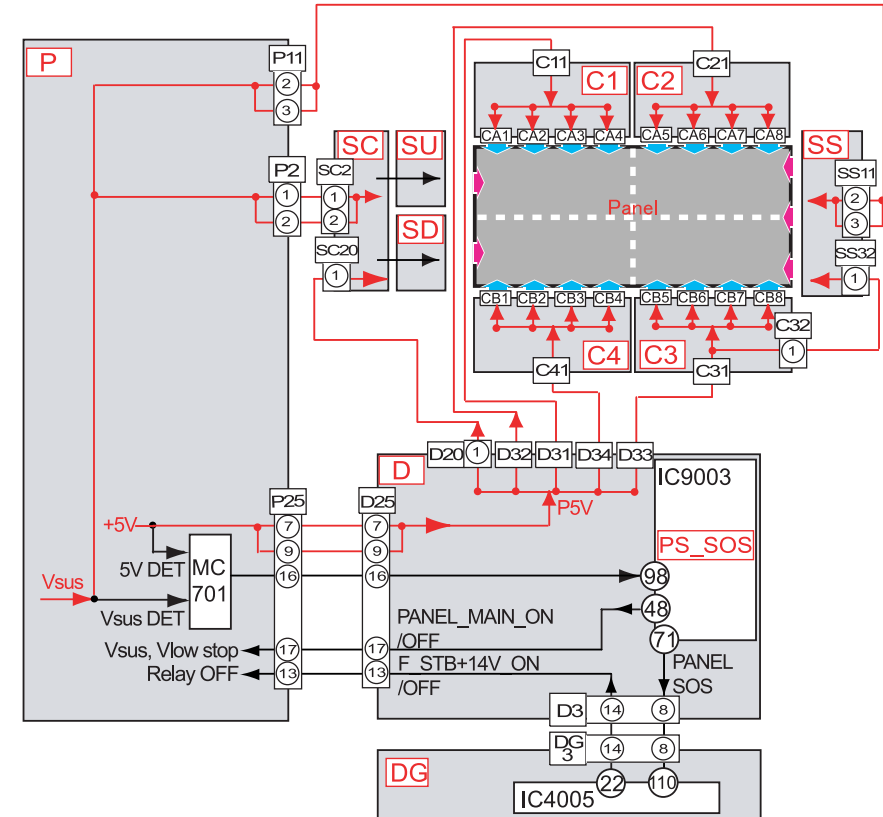
(*1) VSUS about 180V (Accurate voltage is described in Panel Label on the chassis)

(*2) Be careful that disconnected SU or SD board doesn't touch SC board.

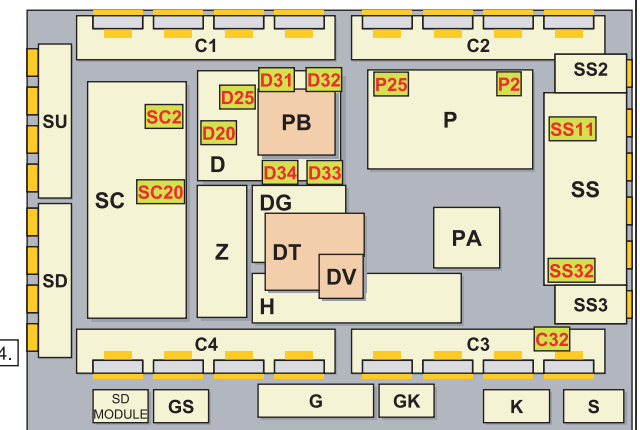
(*3) The reason of disconnect SC20 is to prevent 6 times SOS caused by disconnect D31~D34.

(*4) Check one of the following IC. <TH-37PX50U, 42PX50U, 42PX500U>
 IC in C3 board : IC7301 or IC7302 or IC7303 or IC7304
 IC in C4 board : IC7401 or IC7402 or IC7403 or IC7404

◆ Power Supply and Protection Circuit e.g 42PX500U



◆ Check Point Location e.g 42PX500U



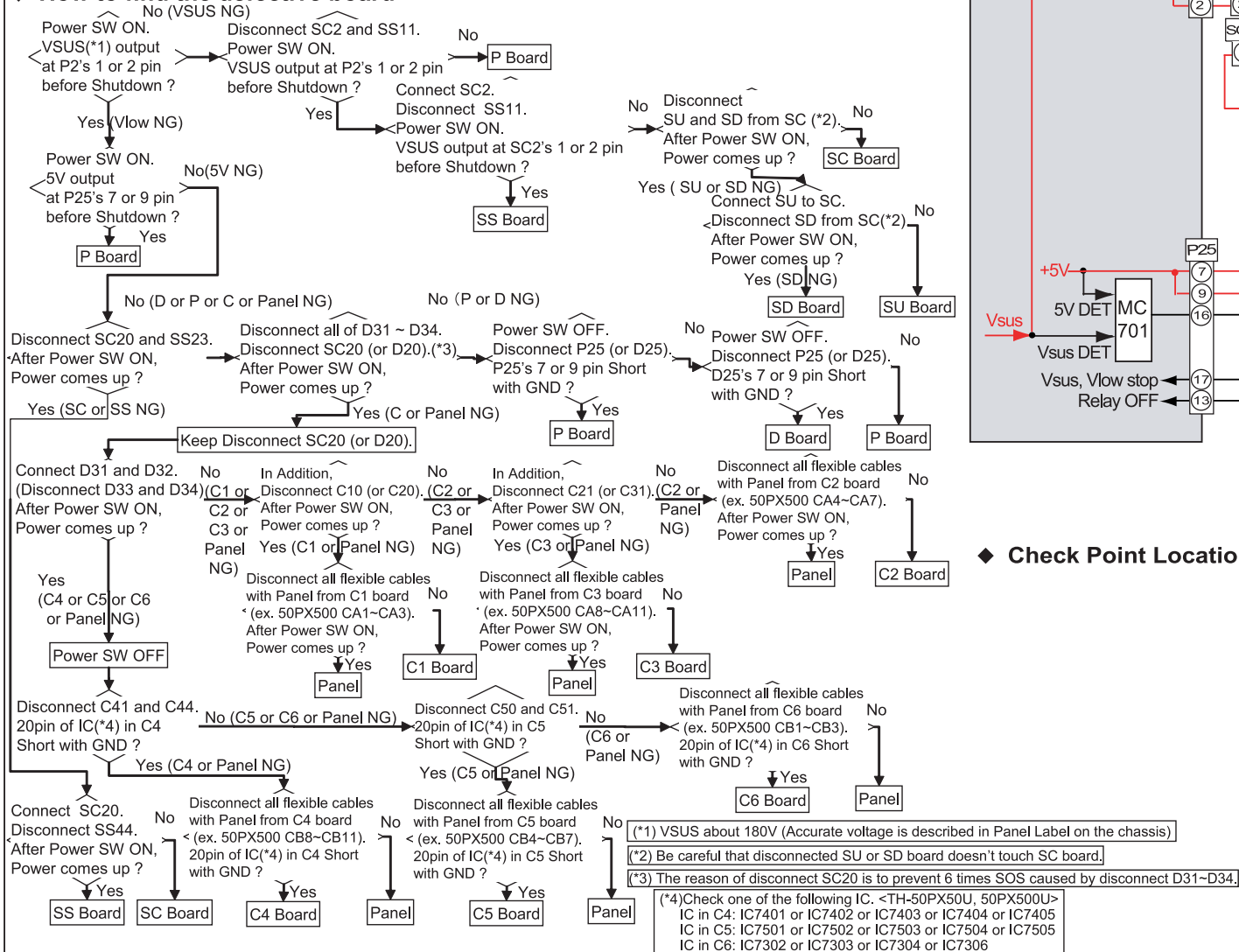
Trouble Shooting Power LED Blink Trouble

LED 4 times blink < 50" HD (TH-50PX50U, 50PX500U) >

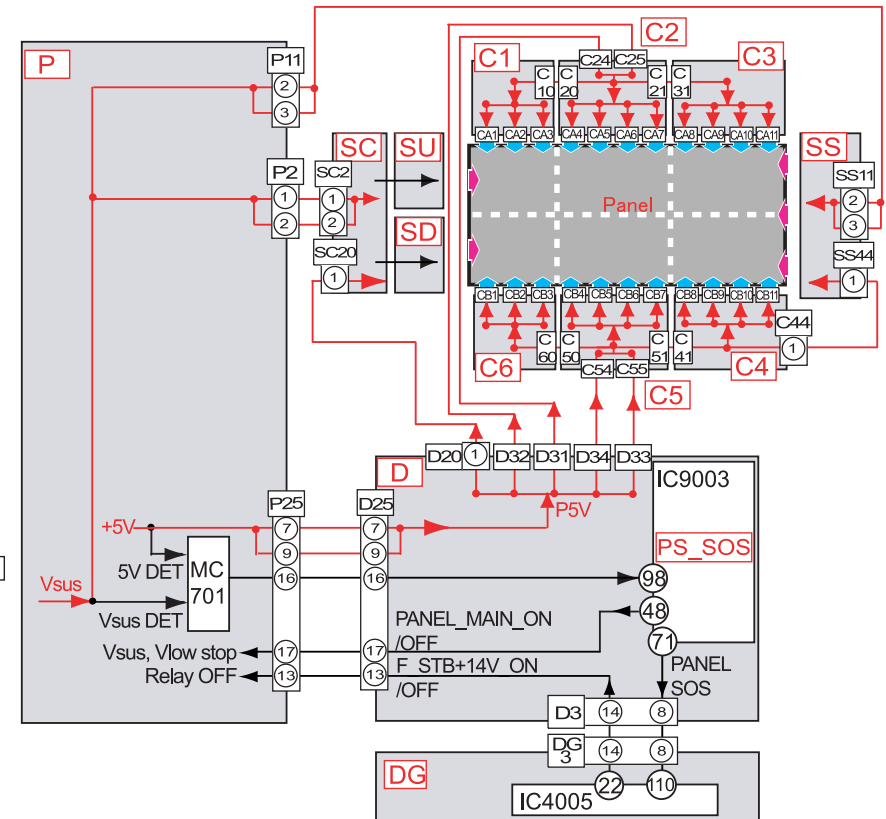
◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board (Possibility)
Power SOS = Vsus, 5V down	P, SC, SS, D, SC, SU Board (P > SC, SS, D, SU, SD)

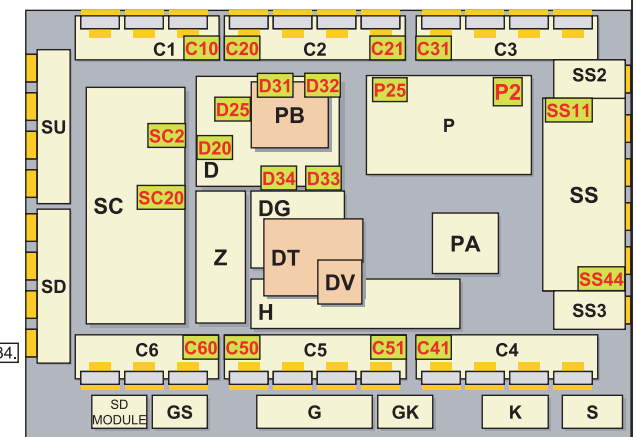
◆ How to find the defective board



◆ Power Supply and Protection Circuit e.g 50PX500U



◆ Check Point Location e.g 50PX500U



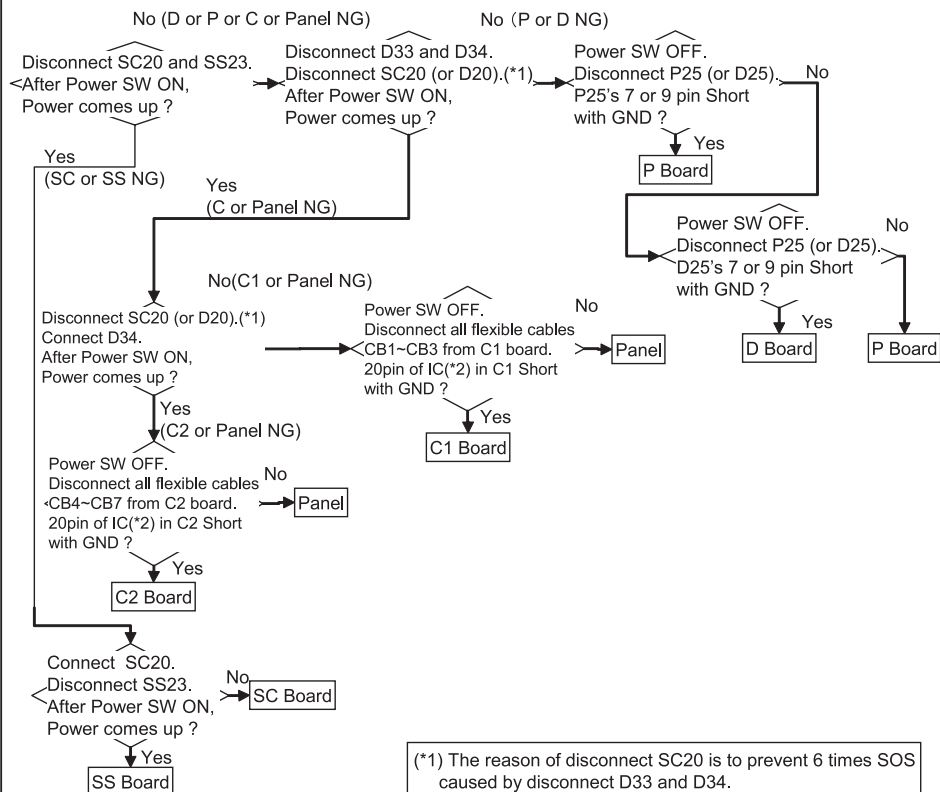
Trouble Shooting Power LED Blink Trouble

LED 5 times blink < 42" SD (TH-42PD50U) >

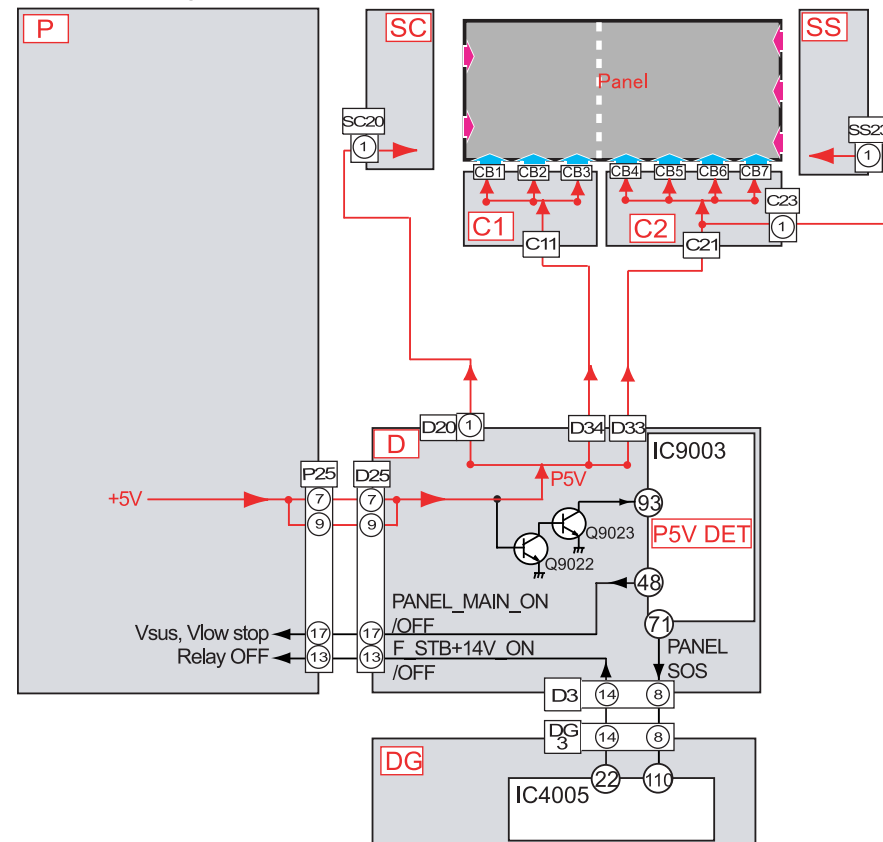
◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board
P5V SOS	D, P, C, SC, SS Board, Panel (IC)

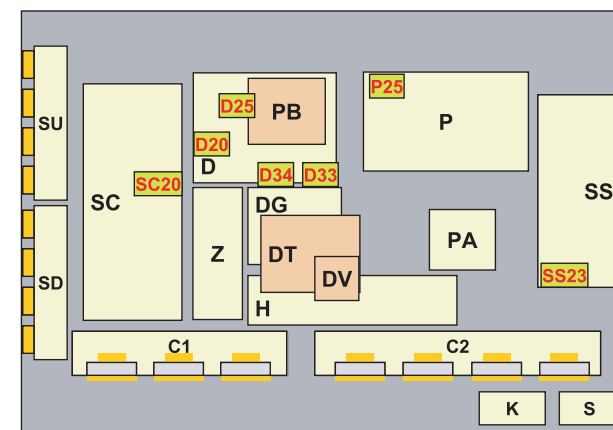
◆ How to find the defective board



◆ Power Supply and Protection Circuit



◆ Check Point Location



Trouble Shooting

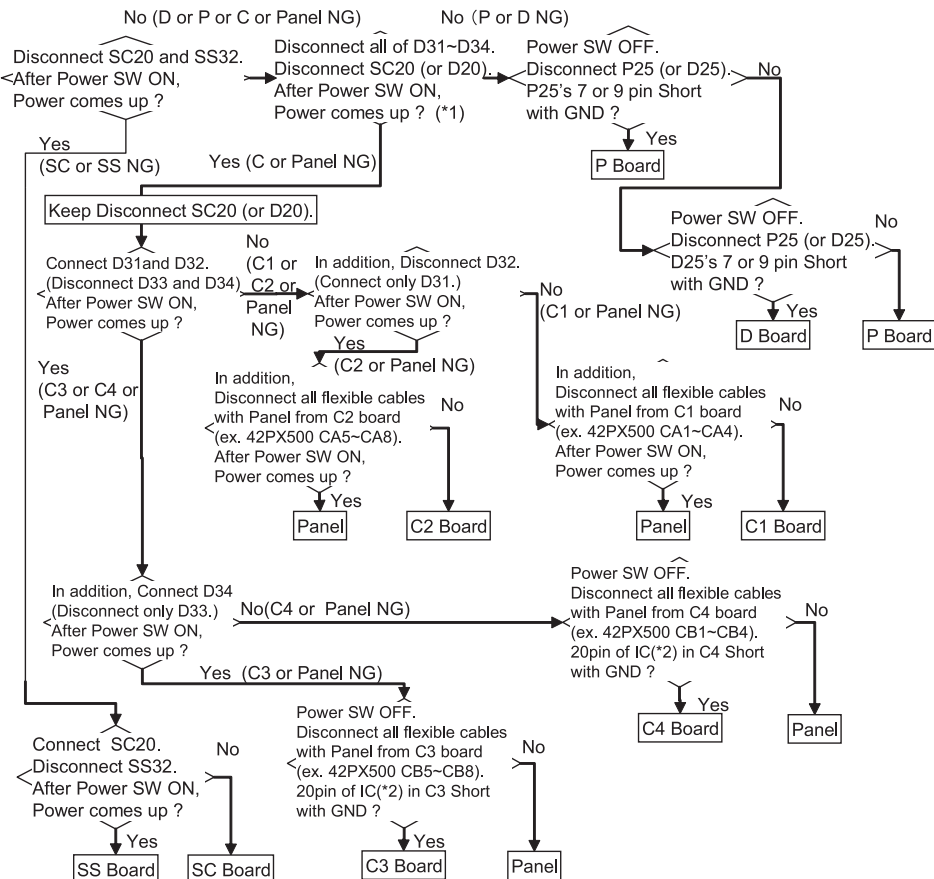
Power LED Blink Trouble

LED 5 times blink < 37", 42" HD (37PX50U, 42PX50U, 42PX500U) >

◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board
P5V SOS	D, P, C, SC, SS Board, Panel (IC)

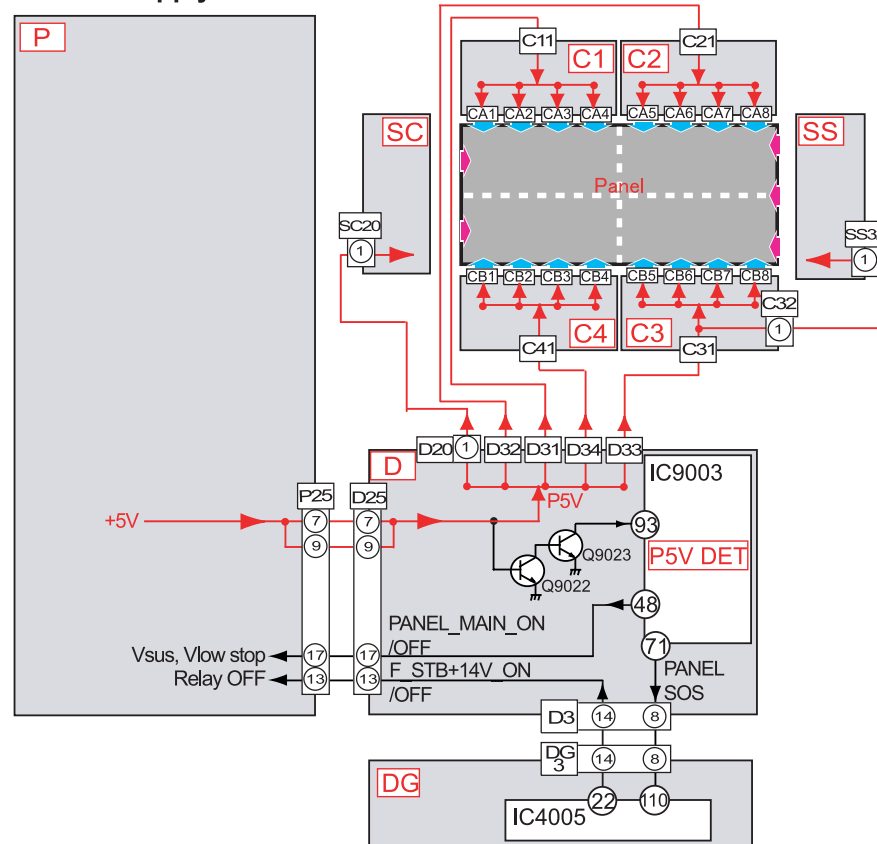
◆ How to find the defective board



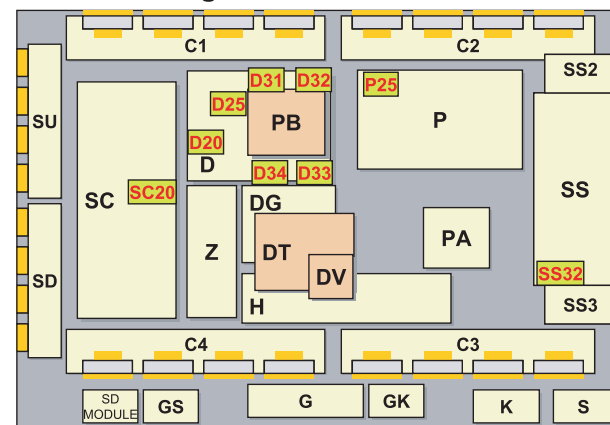
(*1) The reason of disconnect SC20 is to prevent 6 times SOS caused by disconnect D31~D34.

(*2) Check one of the following IC. <TH-37PX50U, 42PX50U, 42PX500U>
IC in C3 board : IC7301 or IC7302 or IC7303 or IC7304
IC in C4 board : IC7401 or IC7402 or IC7403 or IC7404

◆ Power Supply and Protection Circuit



◆ **Check Point Location** e.g 42PX500U



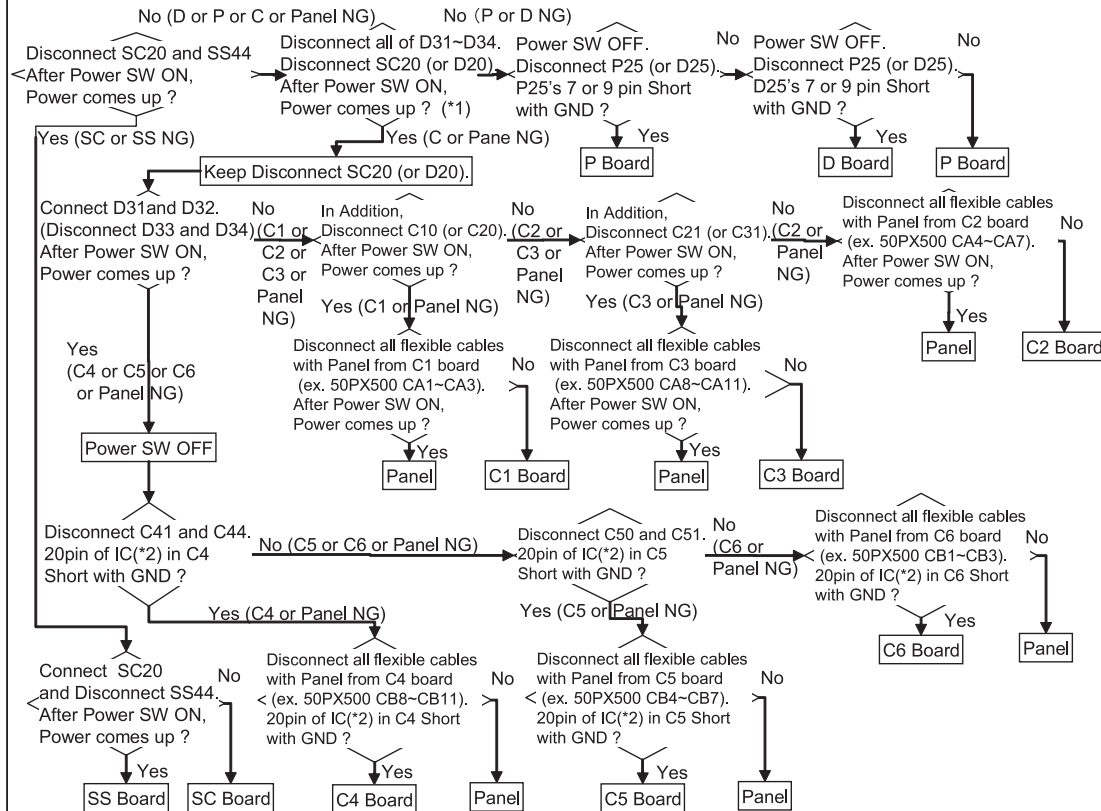
Trouble Shooting Power LED Blink Trouble

LED 5 times blink < 50" HD (TH-50PX50U, 50PX500U) >

◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board
P5V SOS	D, P, C, SC, SS Board, Panel (IC)

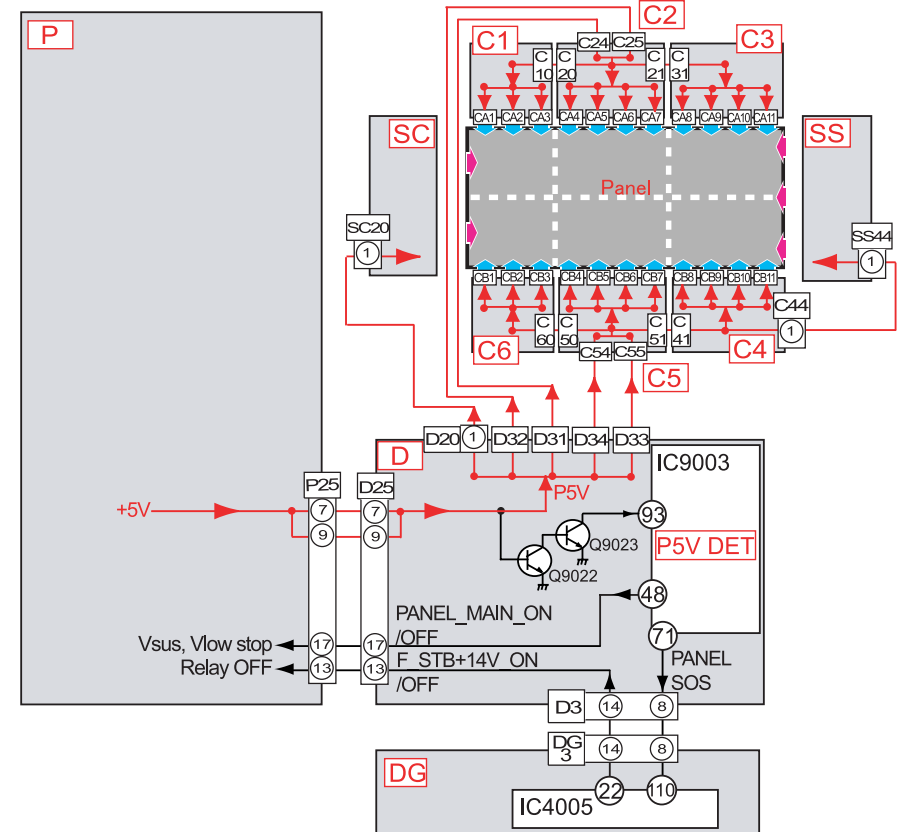
◆ How to find the defective board



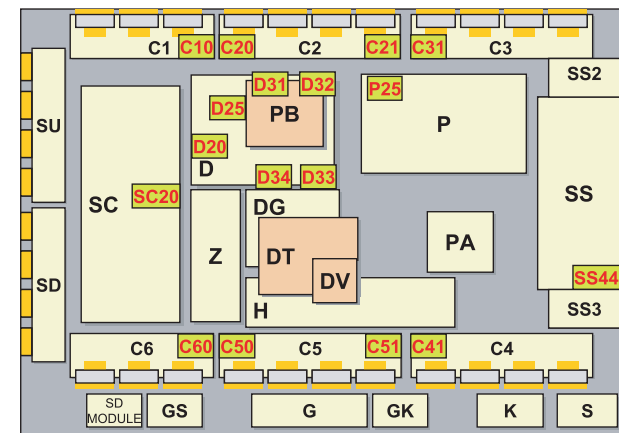
(*1)
The reason of disconnect SC20
is to prevent 6 times SOS
caused by disconnect D31~D34.

(*2) Check one of the following IC. <TH-50PX50U, 50PX500U>
IC in C4 board : IC7401 or IC7402 or IC7403 or IC7404 or IC7405
IC in C5 board : IC7501 or IC7502 or IC7503 or IC7504 or IC7505
IC in C6 board : IC7302 or IC7303 or IC7304 or IC7306

◆ Power Supply and Protection Circuit



◆ Check Point Location e.g 50PX500U



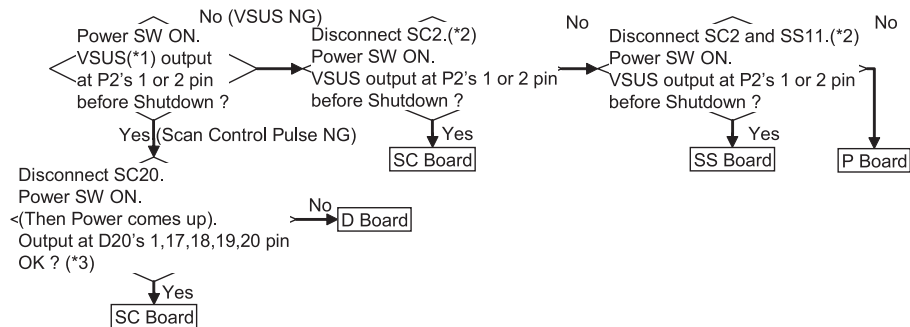
Trouble Shooting Power LED Blink Trouble

LED 6 times blink <TH-42PD50U, 37PX50U, 42PX50U, 42PX500U >

◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board (Possibility)
SC Energy Recovery SOS	SC, SS, D, P Board (SC > SS, D, P)

◆ How to find the defective board

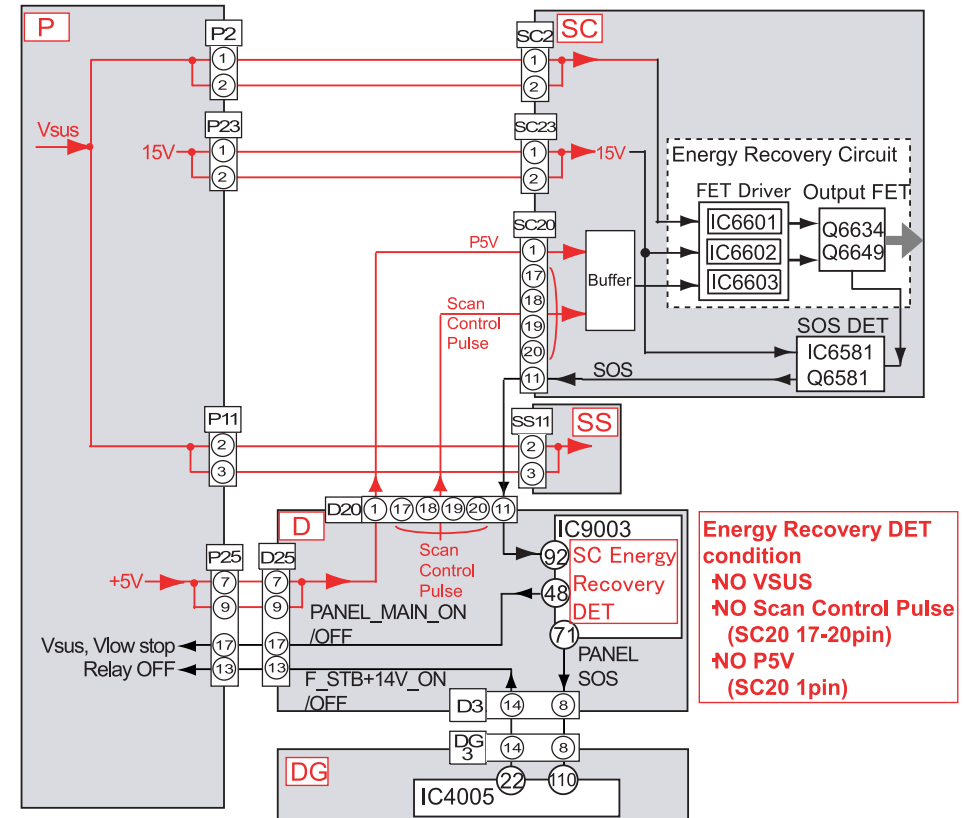


(*1) VSUS about 180V (Accurate voltage is described in Panel Label on the chassis)

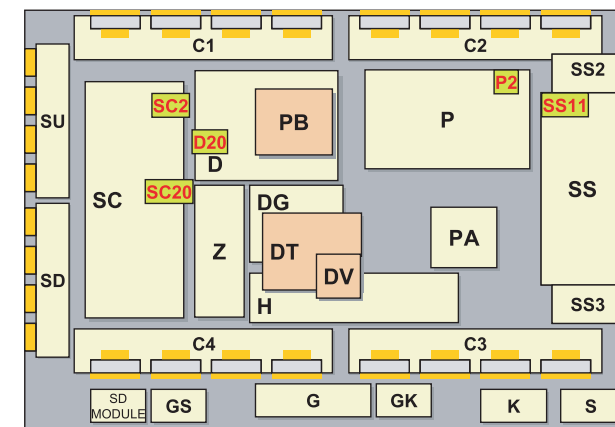
(*2) CAUTION
Before connecting SC2 or SS11 after these are disconnected,
discharge is necessary to prevent potential shock caused by VSUS.

(*3) Check
Pin No. : Output
1 : 5V(DC)
17, 18, 19, 20 : 5V(PULSE) ---need oscilloscope

◆ Power Supply and Protection Circuit e.g 42PX500U



◆ Check Point Location e.g 42PX500U



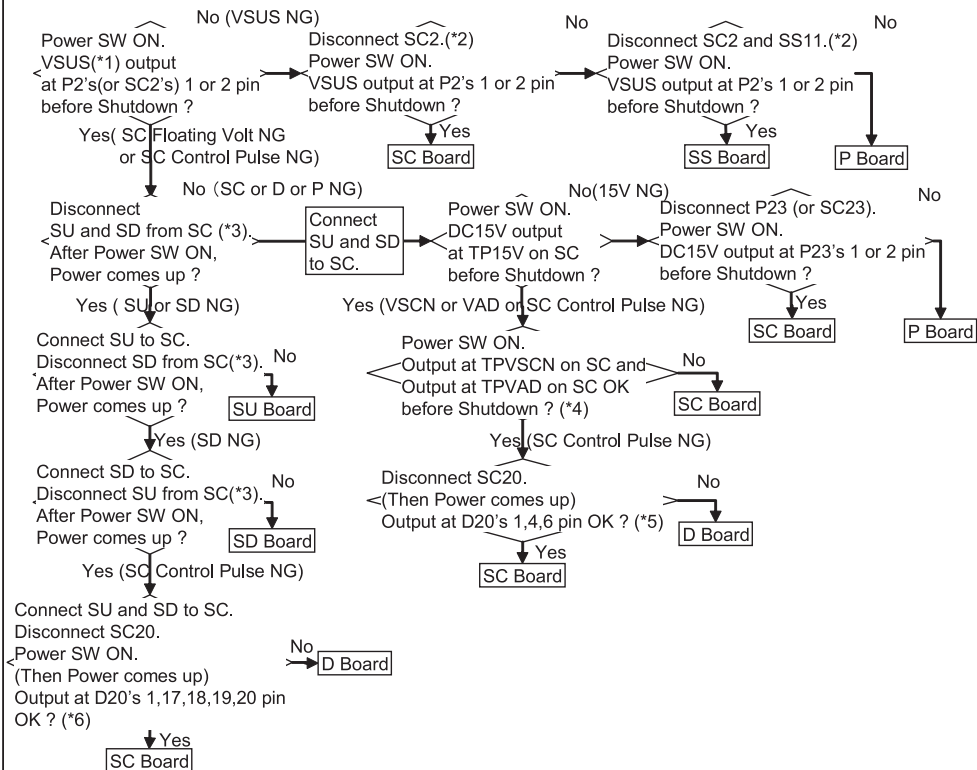
Trouble Shooting Power LED Blink Trouble

LED 6 times blink < 50" (TH-50PX50U, 50PX500U) >

◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board (Possibility)
SC Floating Voltage	SC, SS, D, P Board (SC, SU, SD > SS, D, P)
SC Energy Recovery	SC, SU, SD, D, P Board

◆ How to find the defective board



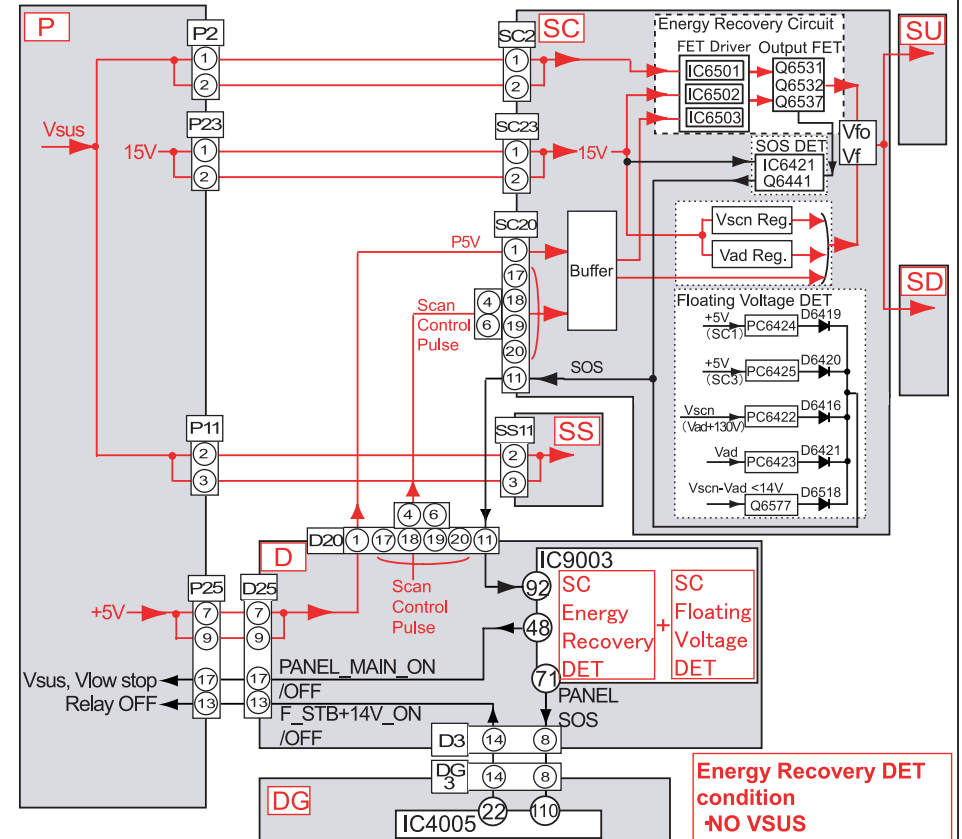
(*1) VSUS about 180V (Accurate voltage is described in Panel Label on the chassis)

(*2) CAUTION
Before connecting SC2 or SS11 after these are disconnected, discharge is necessary to prevent potential shock caused by VSUS.

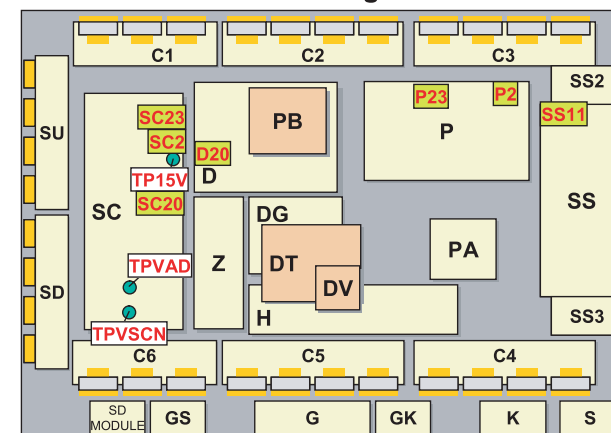
(*3) Be careful that disconnected SU or SD board doesn't touch SC board.

(*4)Check Test Point : Output TPVSCN : about 30~40V TPVAD : about Δ90V	(*5)Check Pin No. : Output 1 : 5V(DC) 4, 6 : 5V(PULSE) ---need oscilloscope	(*6)Check Pin No. : Output 1 : 5V(DC) 17, 18, 19, 20 : 5V(PULSE)---need oscilloscope
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◆ Power Supply and Protection Circuit



◆ Check Point Location e.g 50PX500U



Energy Recovery DET condition
 -NO VSUS
 -NO Scan Control Pulse (SC20 17-20pin)
 -NO P5V (SC20 1pin)

Floating Voltage DET condition
 -NO 15V
 -NO Scan Control Pulse (SC20 4-6pin)
 -NO P5V (SC20 1pin)

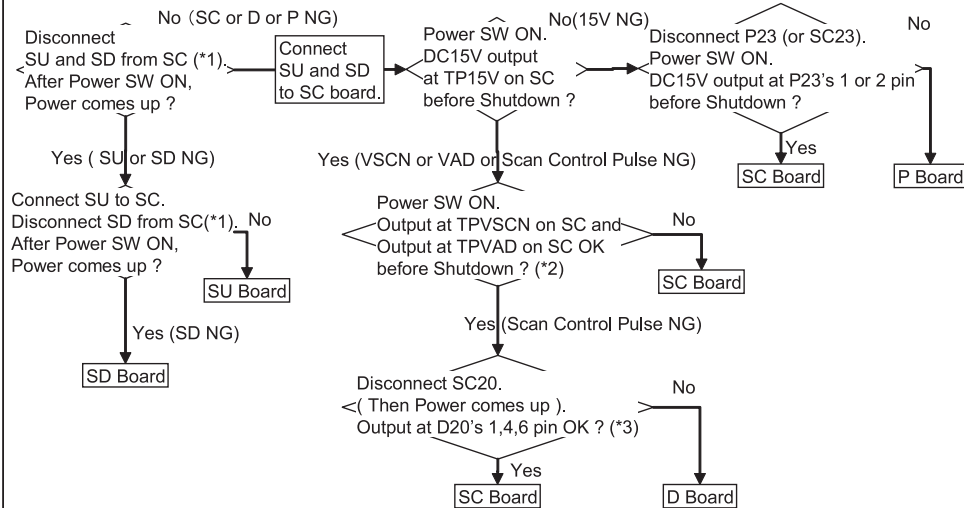
Trouble Shooting Power LED Blink Trouble

LED 7 times blink <TH-42PD50U, 37PX50U, 42PX50U, 42PX500U>

◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board (Possibility)
SC floating voltage SOS	SC, SU, SD, D, P Board (SC, SU, SD > D, P)

◆ How to find the defective board



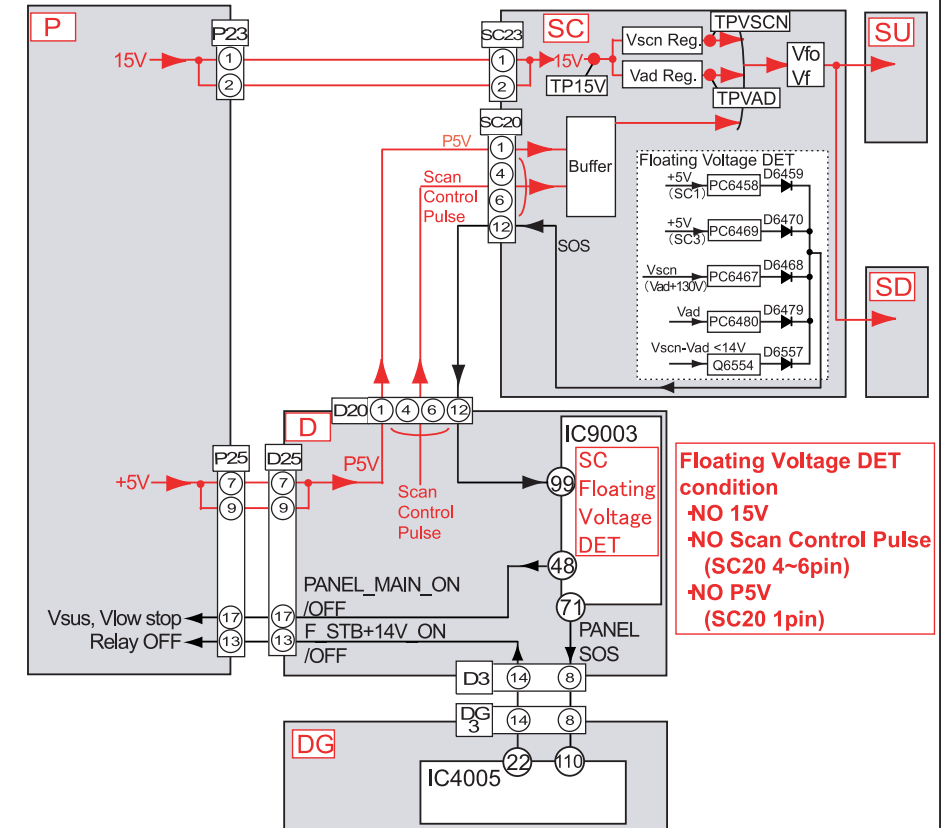
(*1) Be careful that disconnected SU or SD board doesn't touch SC board.

(*2) Check
Test Point. : Output
TPVSCN : about 30~40V
TPVAD : about Δ90V

(*3) Check
Pin No. : Output
1 : 5V(DC)
4, 6 : 5V(PULSE)---need oscilloscope

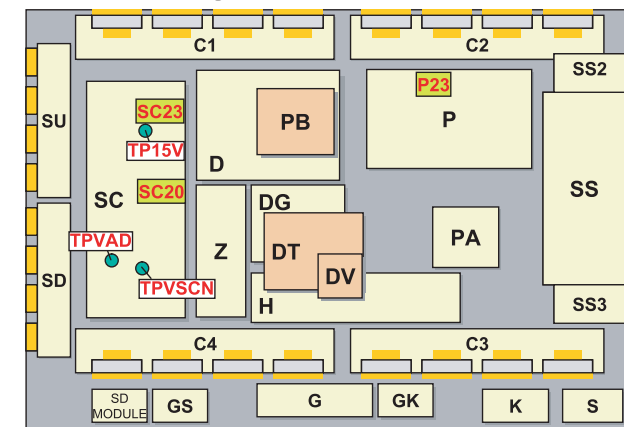
◆ Power Supply and Protection Circuit

e.g 42PX500U



◆ Check Point Location

e.g 42PX500U



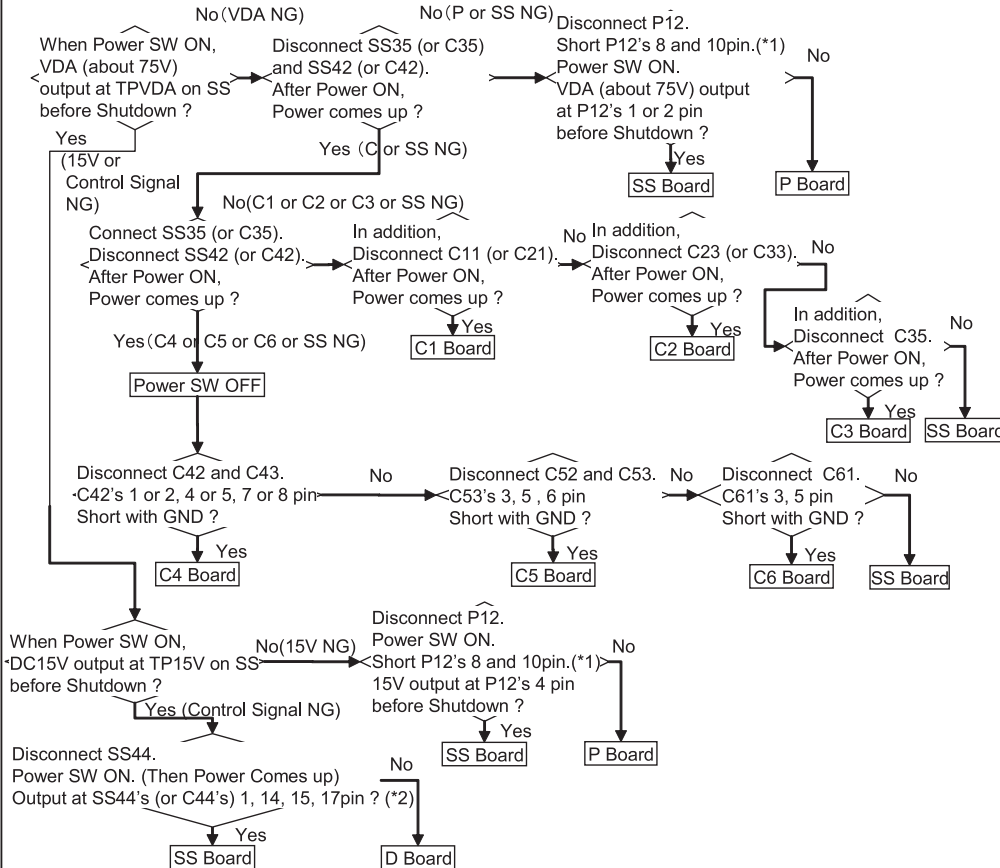
Trouble Shooting Power LED Blink Trouble

LED 7 times blink < 50" (TH-50PX50U, 50PX500U) >

◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board
SS Data Energy recovery	SS, D, C, P

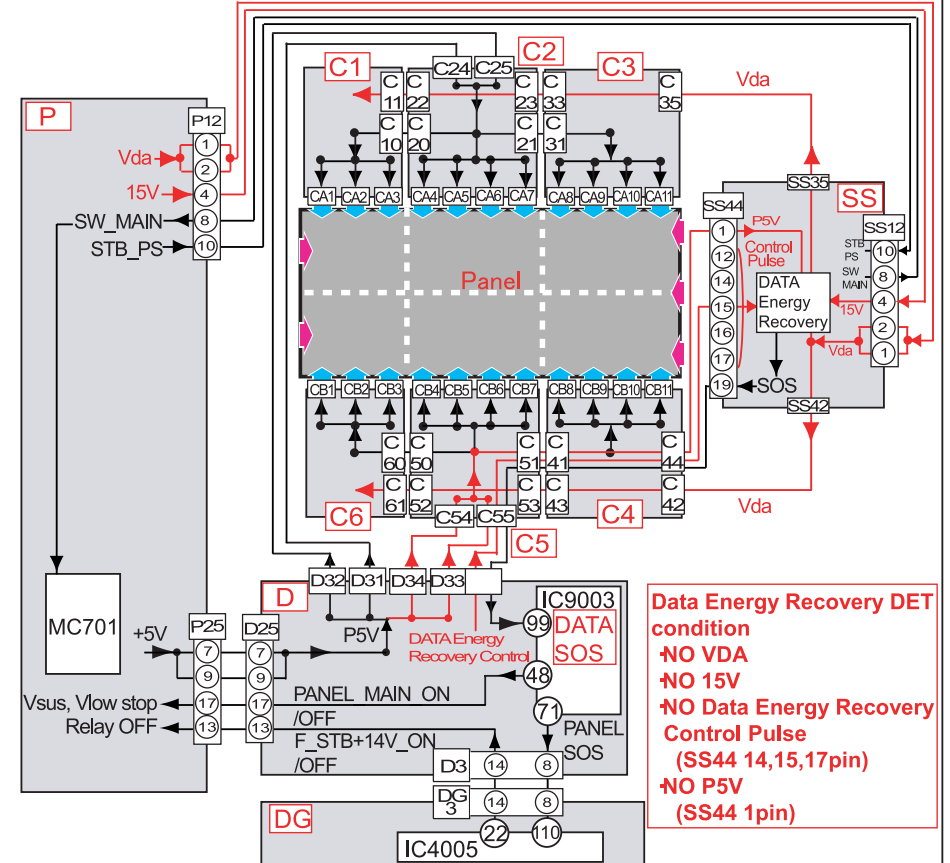
◆ How to find the defective board



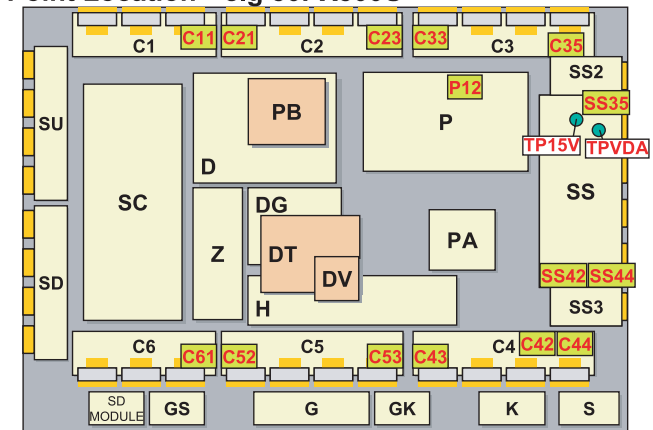
(*1) The reason of short is that SW_MAIN signal is low (STB_PS) and MC701 outputs Relay ON signal for power supply.

(*2) Check
Pin NO : Output
1 : 5V(DC)
14, 15, 17: 5V(PULSE)---need oscilloscope

◆ Power Supply and Protection Circuit



◆ Check Point Location e.g 50PX500U



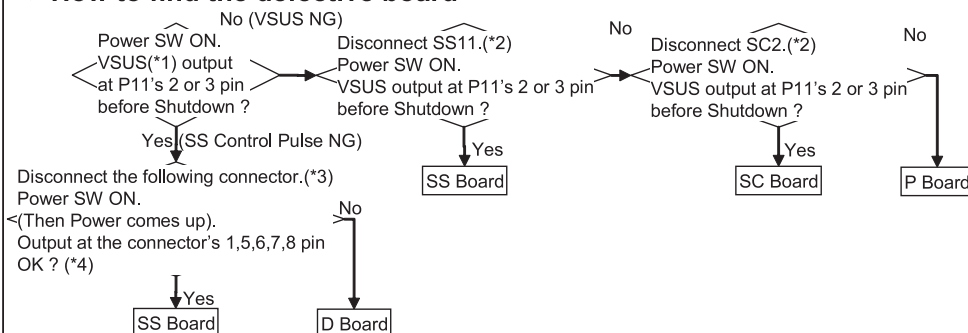
Trouble Shooting Power LED Blink Trouble

LED 8 times blink

◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board (Possibility)
SS Energy recovery	SS, SC, D, P Board (SS > SC, D, P)

◆ How to find the defective board



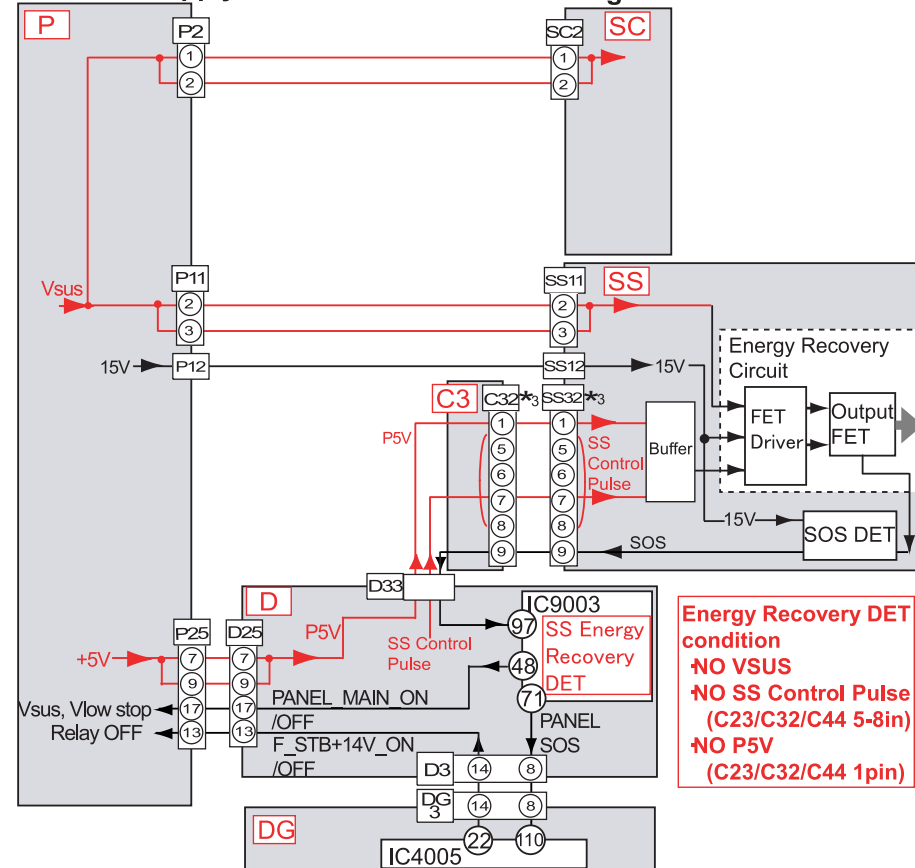
(*1) VSUS about 180V (Accurate voltage is described in Panel Label on the chassis)

(*2) CAUTION
Before connecting SC2 or SS11 after these are disconnected,
discharge is necessary to prevent potential shock caused by VSUS.

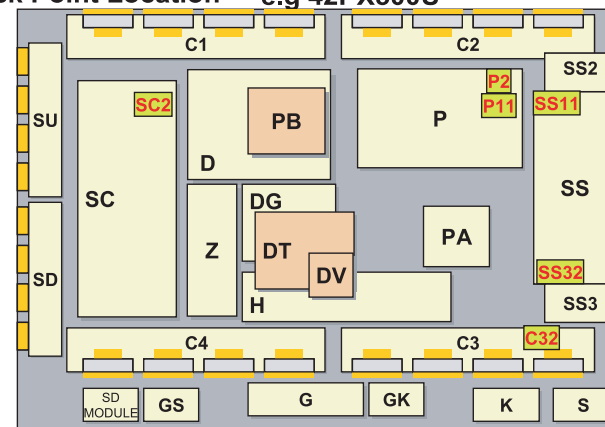
(*3) Connector
Model : Connector
42PD50U(SD) : SS23-C23
37,42PX50U,42PX500U(HD37,42) : SS32-C32
50PX50U,50PX500U(HD50) : SS44-C44

(*4) Output
Pin No. : Output
1 : 5V(DC)
5, 6, 7, 8 : 5V(PULSE)---need oscilloscope

◆ Power Supply and Protection Circuit e.g 42PX500U



◆ Check Point Location e.g 42PX500U



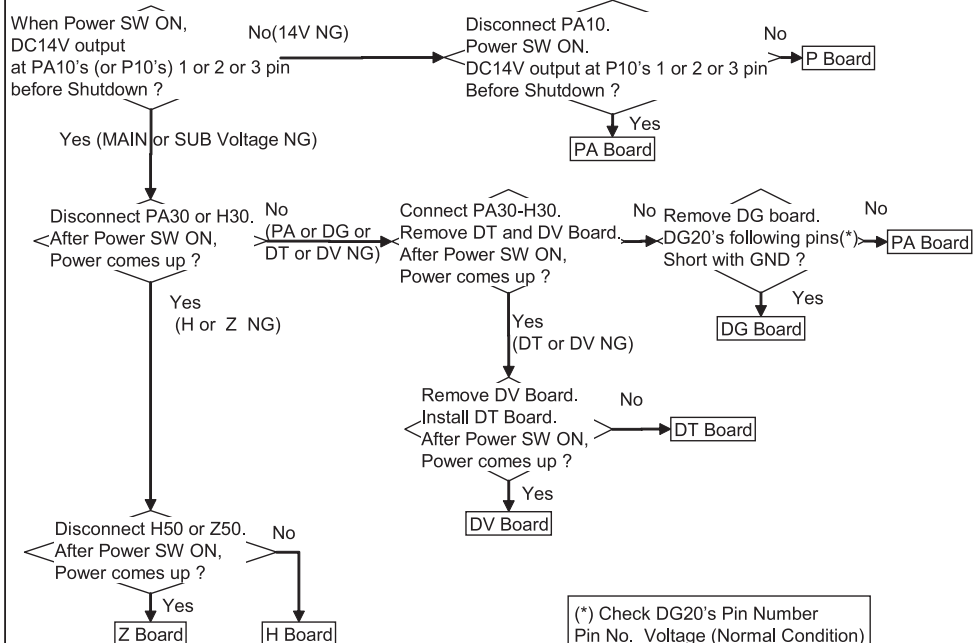
Trouble Shooting Power LED Blink Trouble

LED 10 times blink <TH-42PD50U, 37PX50U, 42PX50U, 50PX50U>

◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board (Possibility)
Tuner Power SOS	PA, P, other Boards (PA, P > other Boards)

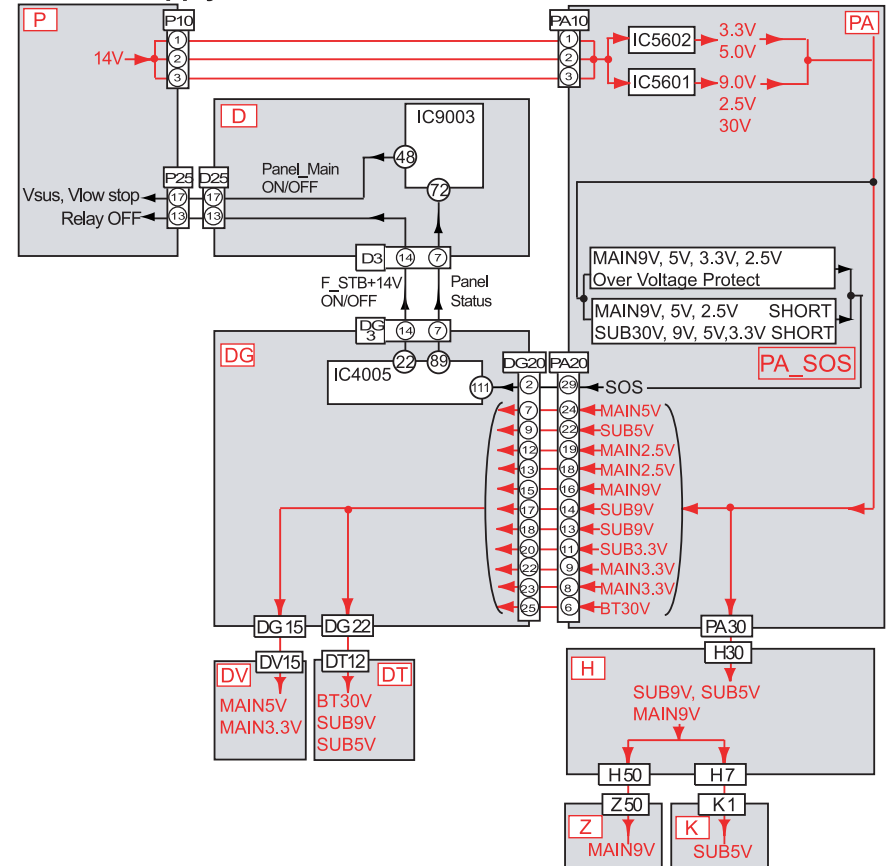
◆ How to find the defective board



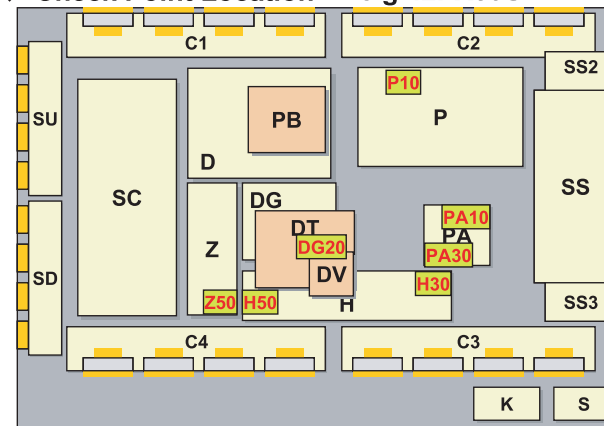
(*) Check DG20's Pin Number

Pin No.	Voltage (Normal Condition)
7	MAIN5V
9	SUB5V
12	MAIN2.5V
13	MAIN2.5V
15	MAIN9V
17	SUB9V
18	SUB9V
20	SUB3.3V
22	MAIN3.3V
23	MAIN3.3V
25	BT30V

◆ Power Supply and Protection Circuit



◆ Check Point Location e.g 42PX50U



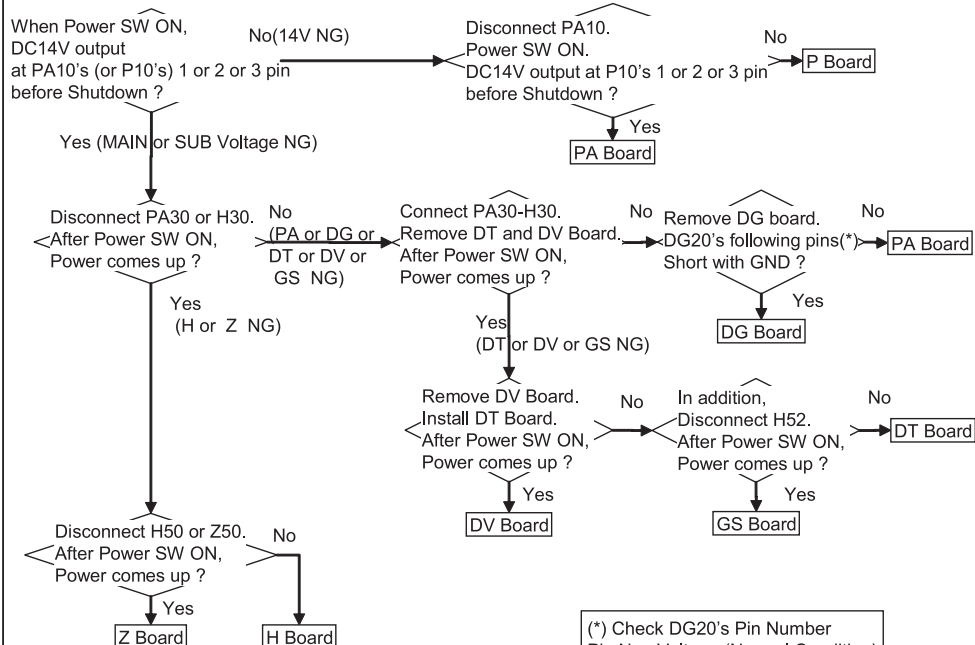
Trouble Shooting Power LED Blink Trouble

LED 10 times blink < TH-42PX500U, 50PX500U >

◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board (Possibility)
Tuner Power SOS	PA, P, other Boards (PA, P > other Boards)

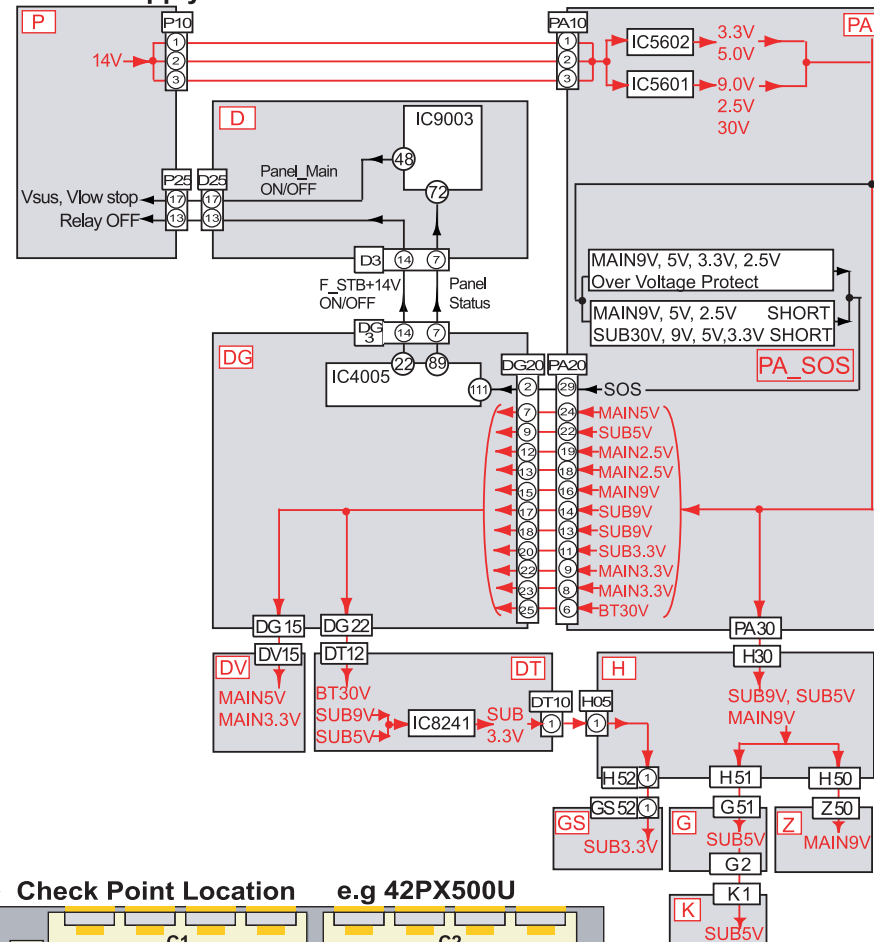
◆ How to find the defective board



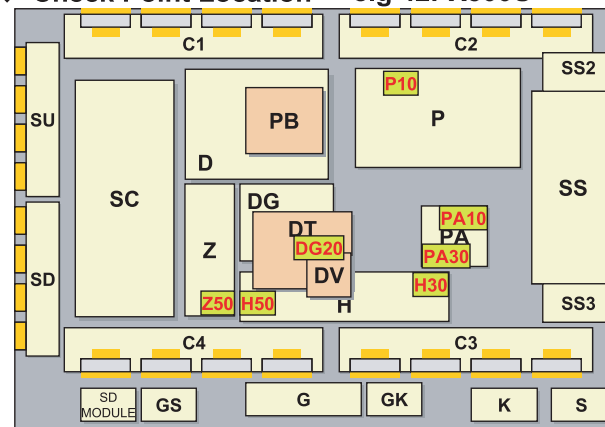
(*) Check DG20's Pin Number

Pin No.	Voltage (Normal Condition)
7	MAIN5V
9	SUB5V
12	MAIN2.5V
13	MAIN2.5V
15	MAIN9V
17	SUB9V
18	SUB9V
20	SUB3.3V
22	MAIN3.3V
23	MAIN3.3V
25	BT30V

◆ Power Supply and Protection Circuit



◆ Check Point Location e.g 42PX500U



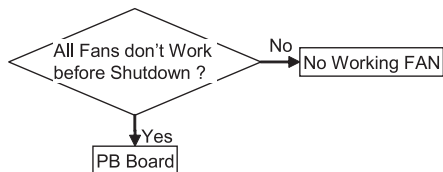
Trouble Shooting Power LED Blink Trouble

LED 11 times blink

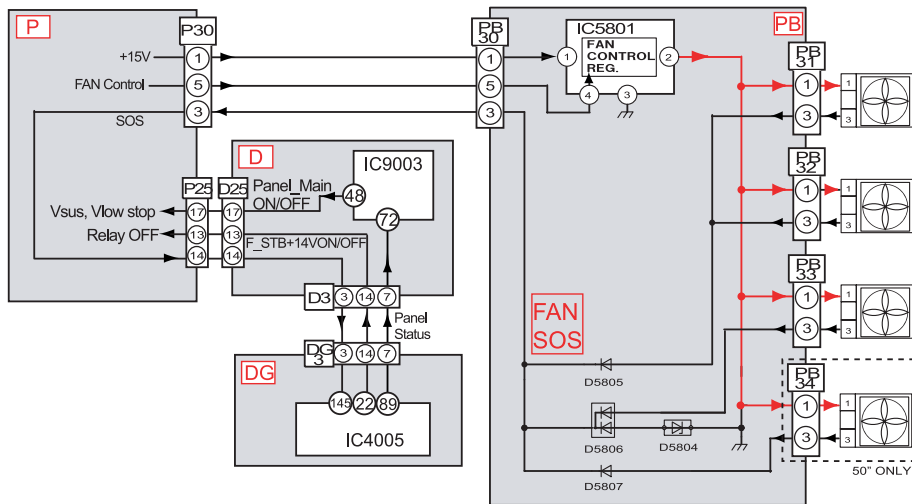
◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board
Fan SOS	PB Board, FAN

◆ How to find the defective board



◆ Power Supply and Protection Circuit

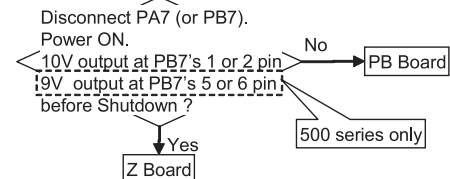


LED 12 times blink

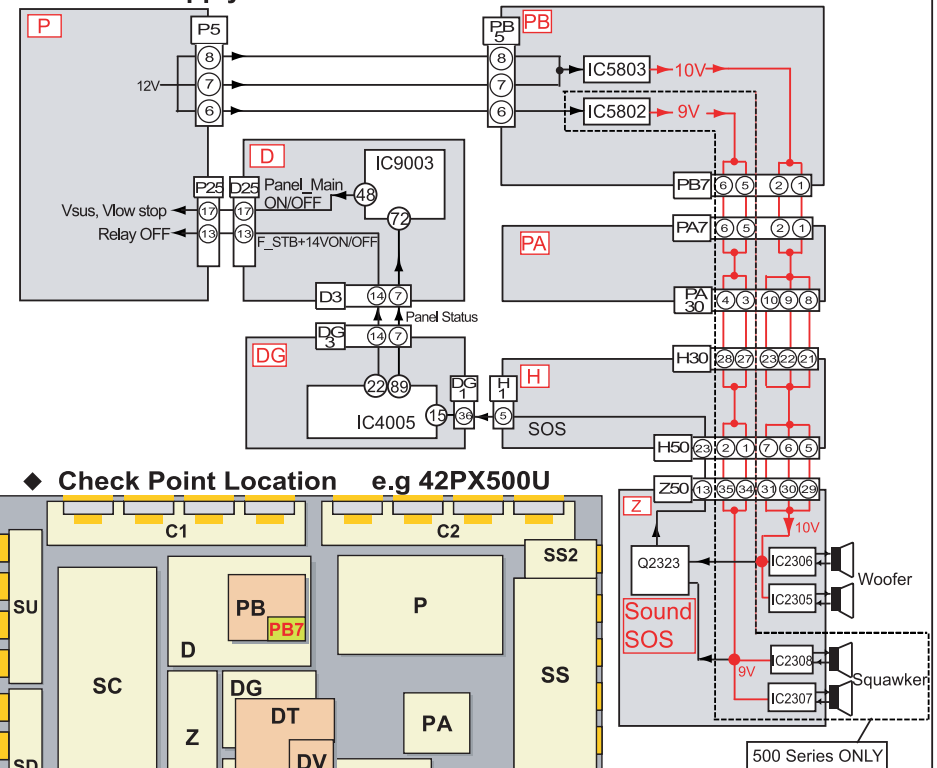
◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board
Speaker 10, 9V short	Z, PB Board

◆ How to find the defective board



◆ Power Supply and Protection Circuit



◆ Check Point Location e.g 42PX500U

